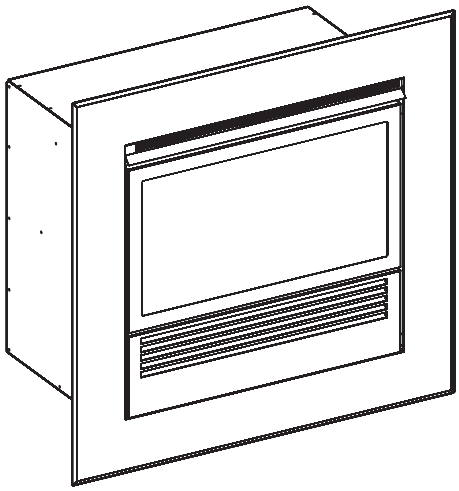
EMPIRE
COMFORT SYSTEMS

INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL



Mantis™

NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED www.nficertified.org

We suggest that our gas hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Gas Specialists.

WARNING: If the information in these instructions are not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

— **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**

— **WHAT TO DO IF YOU SMELL GAS**
- **Do not try to light any appliance.**
- **Do not touch any electrical switch; do not use any phone in your building.**
- **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
- **If you cannot reach your gas supplier, call the fire department.**

— **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

POWER-VENT HIGH-EFFICIENCY FIREPLACE

MODELS
FF28BM(N,P)-1
FI28BM(N,P)-1
FW28BM(N,P)-1

DESIGN CERTIFIED

⚠ WARNING

HOT GLASS WILL CAUSE BURNS.
DO NOT TOUCH GLASS UNTIL COOLED.
NEVER ALLOW CHILDREN TO TOUCH GLASS.

ATTENTION: THIS APPLIANCE IS NOT TO BE INSTALLED IN CANADA.

Installer: **Leave this manual with the appliance.**
Consumer: **Retain this manual for future reference.**

This appliance may be installed in an aftermarket, permanently located, manufactured home (USA only) or mobile home, where not prohibited by state or local codes.

This appliance is only for use with the type of gas indicated on the rating plate. This appliance is not convertible for use with other gases, unless a certified kit is used.

WARNING: If not installed, operated and maintained in accordance with the manufacturer's instructions, this product could expose you to substances in fuel or from fuel combustion which can cause death or serious illness.

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IMPORTANT SAFETY INFORMATION

THIS IS A HEATING APPLIANCE

DO NOT OPERATE THIS APPLIANCE WITHOUT FRONT PANEL INSTALLED.

- **Due to high temperatures the appliance should be located out of traffic and away from furniture and draperies.**
- **Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.**
- **Young children should be carefully supervised when they are in the same room as the appliance. Toddlers, young children and others may be susceptible to accidental contact burns. A physical barrier is recommended if there are at risk individuals in the house. To restrict access to a fireplace or stove, install an adjustale safety gate to keep away toddlers, young children and other at risk individuals out of the room and away from hot surfaces.**
- **Clothing or other flammable material should not be placed on or near the appliance.**
- **Any safety screen or guard removed for servicing an appliance must be replaced prior to operating the appliance.**
- **Keep burner and control compartment clean.**
- **Vent cap hot while furnace is in operation.**
- **For manufactured home (USA only) or mobile home or residential installation convertible for use with natural gas and liquefied petroleum gases when provision is made for the simple conversion from one gas to the other.**
- **Installation and repair should be done by a QUALIFIED SERVICE PERSON. The appliance should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding materials, etc. It is imperative that control compartments, burners and circulating air passageways of the appliance be kept clean.**
- **DO NOT put anything around the furnace that will obstruct the flow of combustion and ventilation air.**
- **DO keep the appliance area clear and free from combustible material, gasoline and other flammable vapors and liquids.**
- **Do examine venting system periodically and replace damaged parts.**
- **Do make a periodic visual check of burner. Clean and replace damaged parts.**
- **DO NOT use this heater if any part has been under water. Immediately call a qualified service technician to inspect the heater and to replace any part of the control system and any gas control which has been under water.**

SAFETY INFORMATION FOR USERS OF LP-GAS

Propane (LP-Gas) is a flammable gas which can cause fires and explosions. In its natural state, propane is odorless and colorless. You may not know all the following safety precautions which can protect both you and your family from an accident. Read them carefully now, then review them point by point with the members of your household. Someday, there may not be a minute to lose, everyone's safety will depend on knowing exactly what to do. If, after reading the following information, you feel you still need more information, please contact your gas supplier.

LP-GAS WARNING ODOR

If a gas leak happens, you should be able to smell the gas because of the odorant put in the LP-Gas. That's your signal to go into immediate action!

- Do not operate electric switches, light matches, use your phone. Do not do anything that could ignite the gas.
- Get everyone out of the building, vehicle, trailer, or area. Do that IMMEDIATELY.
- Close all gas tank or cylinder supply valves.
- LP-Gas is heavier than air and may settle in low areas such as basements. When you have reason to suspect a gas leak, keep out of basements and other low areas. Stay out until firefighters declare them to be safe.
- Use your neighbor's phone and call a trained LP-Gas service person and the fire department. Even though you may not continue to smell gas, do not turn on the gas again. Do not re-enter the building, vehicle, trailer, or area.
- **Finally,** let the service man and firefighters check for escaped gas. Have them air out the area before you return. Properly trained LP-Gas service people should repair the leak, then check and relight the gas appliance for you.

NO ODOR DETECTED - ODOR FADE

Some people cannot smell well. Some people cannot smell the odor of the chemical put into the gas. You must find out if you can smell the odorant in propane. Smoking can decrease your ability to smell. Being around an odor for a time can affect your sensitivity or ability to detect that odor. Sometimes other odors in the area mask the gas odor. People may not smell the gas odor or their minds are on something else. Thinking about smelling a gas odor can make it easier to smell.

The odorant in LP-gas is colorless, and it can fade under some circumstances. For example, if there is an underground leak, the movement of the gas through soil can filter the odorant. Odorants in LP-Gas also are subject to oxidation. This fading can occur if there is rust inside the storage tank or in iron gas pipes.

The odorant in escaped gas can adsorb or absorb onto or into walls, masonry and other materials and fabrics in a room. That will take some of the odorant out of the gas, reducing its odor intensity.

LP-Gas may stratify in a closed area, and the odor intensity could vary at different levels. Since it is heavier than air, there may be more odor at lower levels. Always be sensitive to the slightest gas odor. If you detect any odor, treat it as a serious leak. Immediately go into action as instructed earlier.

SOME POINTS TO REMEMBER

- Learn to recognize the odor of LP-gas. Your local LP-Gas Dealer can give you a "Scratch and Sniff" pamphlet. Use it to find out what the propane odor smells like. If you suspect that your LP-Gas has a weak or abnormal odor, call your LP-Gas Dealer.
- If you are not qualified, do not light pilot lights, perform service, or make adjustments to appliances on the LP-Gas system. If you are qualified, consciously think about the odor of LP-Gas prior to and while lighting pilot lights or performing service or making adjustments.
- Sometimes a basement or a closed-up house has a musty smell that can cover up the LP-Gas odor. Do not try to light pilot lights, perform service, or make adjustments in an area where the conditions are such that you may not detect the odor if there has been a leak of LP-Gas.
- Odor fade, due to oxidation by rust or adsorption on walls of new cylinders and tanks, is possible. Therefore, people should be particularly alert and careful when new tanks or cylinders are placed in service. Odor fade can occur in new tanks, or reinstalled old tanks, if they are filled and allowed to set too long before refilling. Cylinders and tanks which have been out of service for a time may develop internal rust which will cause odor fade. If such conditions are suspected to exist, a periodic sniff test of the gas is advisable. If you have any question about the gas odor, call your LP-gas dealer. A periodic sniff test of the LP-gas is a good safety measure under any condition.
- If, at any time, you do not smell the LP-Gas odorant and you think you should, assume you have a leak. Then take the same immediate action recommended above for the occasion when you do detect the odorized LP-Gas.
- If you experience a complete "gas out," (the container is under no vapor pressure), turn the tank valve off immediately. If the container valve is left on, the container may draw in some air through openings such as pilot light orifices. If this occurs, some new internal rusting could occur. If the valve is left open, then treat the container as a new tank. Always be sure your container is under vapor pressure by turning it off at the container before it goes completely empty or having it refilled before it is completely empty.

REQUIREMENTS FOR MASSACHUSETTS

For all side wall horizontally vented gas fueled equipment installed in every dwelling, building or structure used in whole or in part for residential purposes, including those owned or operated by the Commonwealth and where the side wall exhaust vent termination is less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, the following requirements shall be satisfied:

1. INSTALLATION OF CARBON MONOXIDE DETECTORS. At the time of installation of the side wall horizontal vented gas fueled equipment, the installing plumber or gas fitter shall observe that a hard wired carbon monoxide detector with an alarm and battery back-up is installed on the floor level where the gas equipment is to be installed. In addition, the installing plumber or gas fitter shall observe that a battery operated or hard wired carbon monoxide detector with an alarm is installed on each additional level of the dwelling, building or structure served by the side wall horizontal vented gas fueled equipment. It shall be the responsibility of the property owner to secure the services of qualified licensed professionals for the installation of hard wired carbon monoxide detectors
   a. In the event that the side wall horizontally vented gas fueled equipment is installed in a crawl space or an attic, the hard wired carbon monoxide detector with alarm and battery back-up may be installed on the next adjacent floor level.
   b. In the event that the requirements of this subdivision can not be met at the time of completion of installation, the owner shall have a period of thirty (30) days to comply with the above requirements; provided, however, that during said thirty (30) day period, a battery operated carbon monoxide detector with an alarm shall be installed.

2. APPROVED CARBON MONOXIDE DETECTORS. Each carbon monoxide detector as required in accordance with the above provisions shall comply with NFPA 720 and be ANSI/ UL 2034 listed and IAS certified.

3. SIGNAGE. A metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the exhaust vent terminal for the horizontally vented gas fueled heating appliance or equipment. The sign shall read, in print size no less than one-half (1/2) inch in size, **"GAS VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".**

4. INSPECTION. The state or local gas inspector of the side wall horizontally vented gas fueled equipment shall not approve the installation unless, upon inspection, the inspector observes carbon monoxide detectors and signage installed in accordance with the provisions of 248 CMR 5.08(2)(a) 1 through 4.
   (b) EXEMPTIONS: The following equipment is exempt from 248 CMR 5.08(2)(a)1 through 4:
      1. The equipment listed in Chapter 10 entitled "Equipment Not Required To Be Vented" in the most current edition of NFPA 54 as adopted by the Board; and
      2. Product Approved side wall horizontally vented gas fueled equipment installed in a room or structure separate from the dwelling, building or structure used in whole or in part for residential purposes.
   (d) MANUFACTURER REQUIREMENTS - GAS EQUIPMENT VENTING SYSTEM NOT PROVIDED. When the manufacturer of a Product Approved side wall horizontally vented gas fueled equipment does not provide the parts for venting the flue gases, but identifies "special venting systems", the following requirements shall be satisfied by the manufacturer:
      1. The referenced "special venting system" instructions shall be included with the appliance or equipment installation instructions; and
      2. The "special venting systems" shall be Product Approved by the Board, and the instructions for that system shall include a parts list and detailed installation instruction.
   (e) A copy of all installation instructions for all Product Approved side wall horizontally vented gas fueled equipment, all venting instructions, all parts lists for venting instructions, and/or all venting design instructions shall remain with the appliance or equipment at the completion of the installation.

GAS SUPPLY

Consult the current National Fuel Gas Code, ANSI Z223.1 CAN/CGA-B149 (.1 or .2) installation code.

Recommended Gas Pipe Diameter

Pipe Length	Schedule 40 Pipe Inside Diameter		Tubing, Type L Outside Diameter	
	Nat.	L.P.	Nat.	L.P.
0-10 feet 0-3 meters	1/2" 12.7mm	3/8" 9.5 mm	1/2" 12.7mm	3/8" 9.5 mm
10-40 feet 4-12 meters	1/2" 12.7mm	1/2" 12.7mm	5/8" 15.9 mm	1/2" 12.7mm
40-100 feet 13-30 meters	1/2" 12.7mm	1/2" 12.7mm	3/4" 19mm	1/2" 12.7mm
100-150 feet 31-46 meters	3/4" 19mm	1/2" 12.7mm	7/8" 22.2 mm	3/4" 19mm

Note: Never use plastic pipe. Check to confirm whether your local codes allow copper tubing or galvanized.

Note: Since some municipalities have additional local codes, it is always best to consult your local authority and installation code.

The use of the following gas connectors is recommended:

— ANS Z21.24 Appliance Connectors of Corrugated Metal Tubing and Fittings

— ANS Z21.45 Assembled Flexible Appliance Connectors of Other Than All-Metal Construction

The above connectors may be used if acceptable by the authority having jurisdiction. The state of Massachusetts requires that a flexible appliance connector cannot exceed three feet in length.

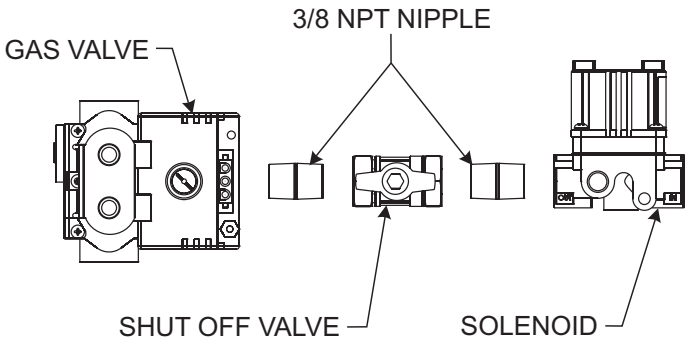


Figure 1

Installing a New Main Gas Cock

Each appliance should have its own manual gas cock.

A manual main gas cock should be located in the vicinity of the unit. Where none exists, or where its size or location is not adequate, contact your local authorized installer for installation or relocation.

Compounds used on threaded joints of gas piping shall be resistant to the action of liquefied petroleum gases. The gas lines must be checked for leaks by the installer. This should be done with a soap solution watching for bubbles on all exposed connections, and if unexposed, a pressure test should be made.

Never use an exposed flame to check for leaks. Appliance must be disconnected from piping at inlet of control valve and pipe capped or plugged for pressure test. Never pressure test with appliance connected; control valve will sustain damage!

A gas valve and ground joint union should be installed in the gas line upstream of the gas control to aid in servicing. It is required by the National Fuel Gas Code that a drip line be installed near the gas inlet. This should consist of a vertical length of pipe tee connected into the gas line that is capped on the bottom in which condensation and foreign particles may collect.

Pressure Testing of the Gas Supply System

1. To check the inlet pressure to the gas valve, a 1/8" (3 mm) N.P.T. plugged tapping, accessible for test gauge connection, must be placed immediately upstream of the gas supply connection to the appliance.
2. The appliance and its individual shutoff valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.5 kPa).
3. The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5 kPa).

Attention! If one of the procedures results in pressures in excess of 1/2 psig (14" w.c.) (3.5 kPa) on the fireplace gas valve, it will result in a hazardous condition.

Checking Manifold Pressure

Both Propane and Natural gas valves have a built-in pressure regulator in the gas valve. Natural gas models will have a manifold pressure of approximately 3.5" w.c. (.872 kPa) at the valve outlet with the inlet pressure to the valve from a minimum of 5.0" w.c. (1.245 kPa) for the purpose of input adjustment to a maximum of 10.5" w.c. (2.614 kPa) Propane gas models will have a manifold pressure approximately 7.0" w.c. (2.49 kPa) at the valve outlet with the inlet pressure to the valve from a minimum of 11.0" w.c. (2.739 kPa) for the purpose of input adjustment to a maximum of 13.0" w.c. (3.237 kPa).

A 1/8" (3 mm) N.P.T. plugged tapping, accessible for test gauge connection, is located on the outlet side of the gas control.

INTRODUCTION

Introduction
Always consult your local Building Department regarding regulations, codes or ordinances which apply to the installation of a direct vent wall furnace.

Instructions to Installer
1. Installer must leave instruction manual with owner after installation.
2. Installer must have owner fill out and mail warranty card supplied with furnace.
3. Installer should show owner how to start and operate furnace and thermostat.
4. Installer must locate unit near a grounded wall receptacle for 115VAC power and must provide gas supply and vent the unit properly for safe operation.

Warning:
Any change to this furnace or its control can be dangerous. This is a heating appliance and any panel, door or guard removed for servicing an appliance must be replaced prior to operating the appliance.

General Information
This series is designed certified in accordance with American National Standard/CSA Standard Z21.88 and CSA 2.33 by the Canadian Standards Association as a Gas Fireplace Heater to be installed according to these instructions.

Any alteration of the original design, installed other than as shown in these instructions or use with a type of gas not shown on the rating plate is the responsibility of the person and company making the change.

Important
All Correspondence should refer to complete Model Number, Serial Number and type of gas.

Notice: During initial firing of this unit, oil from the heat exchanger may bake out and smoke may occur. To prevent triggering of smoke alarms, ventilate the room in which the unit is installed.

Installation in Residential Garages
Gas utilization equipment in residential garages shall be installed so that all burners and burner ignition devices are located not less than 18" (457 mm) above the floor.

Such equipment shall be located, or protected, so it is not subject to physical damage by a moving vehicle.

Qualified Installing Agency
Installation and replacement of gas piping, gas utilization equipment or accessories and repair and servicing of equipment shall be performed only by a qualified agency. The term "qualified agency" mean any individual, firm, corporation or company which either in person or through a representative is engaged in and is responsible for (a) the installation or replacement of gas piping or (b) the connection, installation, repair or servicing of equipment, who is experienced in such work, familiar with all precautions required and has complied with all the requirements of the authority having jurisdiction.
The installation must conform with local codes, or in the absence of local codes, the National Fuel Gas Code, ANSI Z223.1/NFPA 54 or Natural Gas and Propane Installation Code, CSA B149.1.
* Available from the American National Standards Institute, Inc., 11 West 42nd St., New York, NY 10036.

A manufactured home (USA only) or mobile home OEM installation must conform with the Manufactured Home Construction and Safety Standard, Title 24 CFR, Part 3280, or, when such a standard is not applicable, the Standard for Manufactured Home Installations, ANSIZ225.1, or Standard for Gas Equipped Recreational Vehicles and Mobile Housing, CSA Z240.0.

Sate of Massachusetts: The installation must be made by a licensed plumber or gas fitter in the Commonwealth of Massachusetts.

High Altitudes
For altitudes/elevations above 2,000 feet (610 m), input ratings should be reduced at the rate of 4 percent for each 1,000 feet (305 m) above sea level, this may be accomplished by reducing manifold pressure. The maximum allowable reduction in manifold pressure for Natural gas shall be from 3.5" w.c. (.872 kPa) to 2.8" w.c. (.697 kPa). The maximum allowable reduction in manifold pressure for Propane (LP) gas shall be from 10.0" w.c. (2.49 kPa) to 8.0" w.c. (1.99 kPa). For Canadian high altitude applications, this appliance is suitable for installation at elevations between 0 feet (0 m) and 4,500 feet (1,372 m) without change.

ATTENTION:
THIS APPLIANCE IS NOT TO BE INSTALLED IN CANADA.

INSTALLATION INSTRUCTIONS - GENERAL SAFETY INFORMATION

1. This installation must conform with local codes or, in the absence of local codes with NFPA54.
2. Provide adequate clearances around the product for servicing and ensure there are no obstructions to the combustion air intake situated at the back of the heater. Refer to Page 12, Figures 3 through 7.
3. The appliance must be installed on a flat, solid continuous surface (i.e. wood, metal, concrete). Please Note: Rough or uneven surfaces can cause vibration or humming in the heater.
4. The Mantis Power-Vent High-Effeciency Fireplace can be installed in a wide variety of ways and will fit nearly any room layout. It may be installed in a recessed position, framed out into the room, or across a corner. For installation options refer to page 12.
5. This appliance needs to be installed in such a way that the heater can be removed at all times to service the heater exchanger and flue fan located in the rear section of the heater.

Note: Under no circumstances should the appliance be installed under conditions which would not allow for easy removal of the appliance to carry out routine inspection and service to the appliance, to do so will void the warranty.

Note: On Single Wall flue pipe installations (imitation zero clearance fireplace) a minimum of 2" (50.8 cm) clearance must be provided at the rear of the heater to enable the heater to get sufficient combustion air to the air inlet located at the rear of heater. Refer to installation instructions on page 12, Figures 3 through 7.

Note: Where a mantel surround is being used on insert installations and zero clearance fireplace installations, the combustion air intake slot located in the top mantel surround must have no obstructions to allow combustion air to enter through the slot to the combustion air inlet located at the back of the heater.

SPECIFICATIONS

Model	F(F,I,W)28BM(N,P)
Input BTU/HR (KW/H)	15,000 Rear - 13,000 Front
Height	24 3/4"
Width	28 3/16"
Depth	17 5/8"
Gas Inlet (Pipe)	3/8" Flair
Electrical -	Unit has a 5' (1.5 m) 3 pronged cordset for connection to an approved 115 VAC 60 Hz maximum AMPs - 5A wall receptacle.

Accessories	
Part Number	Description
TRW	Wall Thermostat - Wireless Remote
FRBTC	Battery Operated Remote with Thermostat
FRBTP	Battery Operated Remote with Programmable Thermostat
TDV1	24 Digital Wall Thermostat
T24V	24 Volt Thermostat
TMV2	Two-Stage Thermostats
PVVK24H	Direct Vent 24" Vent Kit
PVVK48H	Direct Vent 48" Vent Kit
PVVK-SH	Single Flue Horizontal Vent Kit
PVVK-SV	Single Flue Vertical Vent Kit
PVVK-CFA	Flex Vent Kit
PVCT	Colinear Transition
PVVTC	Vertical Termination Cap - 1.5"
PVCA	Colinear Adapter

CLEARANCES FOR DIRECT VENT

1. Pick a location on a wall with a clear space in the room. In selecting a location for installation, it is necessary to provide adequate accessibility clearances for servicing and proper installation. Be sure to locate the unit close enough to a 110 VAC wall receptacle to properly power appliance.
2. When facing the front of the furnace the minimum clearances from casing to combustible construction are 0" (0 mm) on top, 0" (0 mm) on each side, and 0" (0 mm) from the floor, 0" (0 mm) to rear wall and 44 3/4" (1136.7 mm) from Mantis top to ceiling.
3. The minimum distance from the center of the vent cap to the nearest outside corner or obstruction is 12" (305 mm).
4. The minimum wall depth is 4" (102 mm) and the maximum is 48" (121.92 cm).

The vent terminal of a direct vent appliance, with an input of 50,000 BTU (14.6KW) per hour or less shall be located at least 9" (229 mm) from any opening through which flue gases could enter a building.

The bottom of the exhaust vent terminal and the air intake shall be located at least 12" (305 mm) above grade and must be vented outside.

WARNING: The nearest point of the vent cap should be a minimum horizontal distant of six (6) feet (1.83 m) from any pressure regulator. In case of regulator malfunction, the six (6) feet (1.83 m) distance will reduce the chance of gas entering the vent cap.

Installation on Rugs and Tile

If this appliance is to be installed directly on carpeting, tile, or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance.

The base referred to above does not mean the fire-proof base as used on wood stoves. The protection is primarily for rugs that may be extremely thick and light-color tile that can discolor.

HEATER INSTALLATION FOR DIRECT VENT

Locating Wall Opening

The recommended location for this furnace is on an outside wall. Locate wall studs so that wall vent opening will be located between wall studs. The wall opening required for venting is a 3 1/2" (89 mm) minimum diameter opening.

Refer to Figures 3 to 5 for positioning the heater on wall and for locating gas line connection and vent opening. Furnace can sit on the floor.

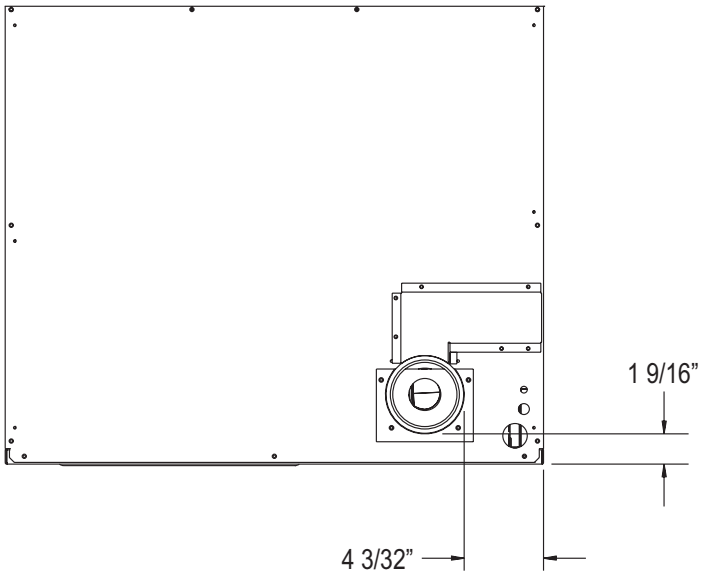


Figure 2

CLEARANCES FOR SINGLE FLUE

1. Pick a location on a wall with a clear space in the room. In selecting a location for installation, it is necessary to provide adequate accessibility clearances for servicing and proper installation. Be sure to locate the unit close enough to a 115 VAC wall receptacle to properly power appliance.
2. When facing the front of the furnace, the minimum clearances from casing to combustible construction are 0" (0 mm) on top, 0" (0 mm) on each side, 0" (0 mm) from the floor and 2" (51 mm) to rear wall for servicing and installation.
3. The minimum distance from the center of the vent cap to the nearest outside corner or obstruction is 12" (305 mm).

The bottom of the exhaust vent terminal and the air intake shall be located at least 12" (305 mm) above grade and must be vented outside.

WARNING: The nearest point of the vent cap should be a minimum horizontal distance of six (6) feet (1.83 m) from any pressure regulator. In case of regulator malfunction, the six (6) feet (1.83 m) distance will reduce the chance of gas entering the vent cap.

Installation on Rugs and Tile

If this appliance is to be installed directly on carpeting, tile, or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance.

The base referred to above does not mean the fire-proof base as used on wood stoves. The protection is primarily for rugs that may be extremely thick and light-color tile that can discolor.

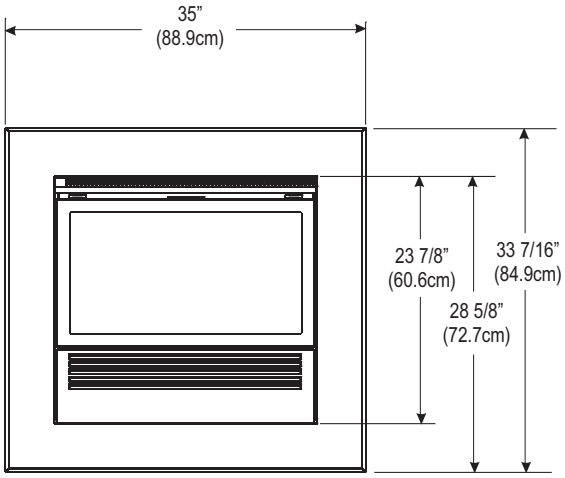
HEATER INSTALLATION FOR SINGLE FLUE

Locating Wall Opening

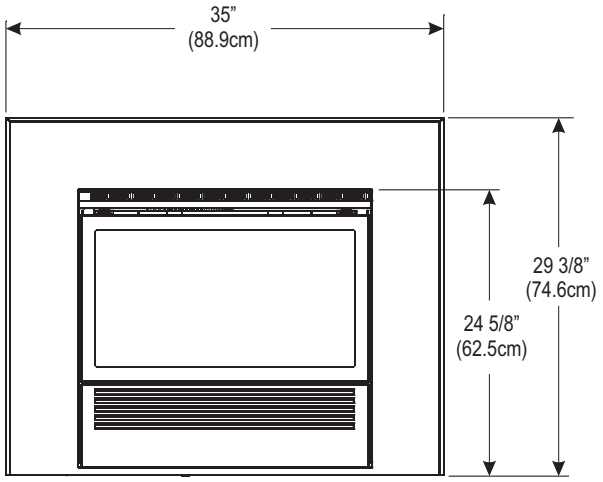
The recommended location for this heater is on an outside wall (the unit can be located on an inside wall but must not exceed 40' (12.19 m) in exhaust vent length. Locate wall studs so that wall vent opening will be located between wall studs. The wall opening required for venting is a 1 7/8" (48 mm) minimum diameter opening.

Refer to Figures 3 to 5 for positioning the heater on wall and for locating gas line connection and vent opening. Heater can sit on the floor.

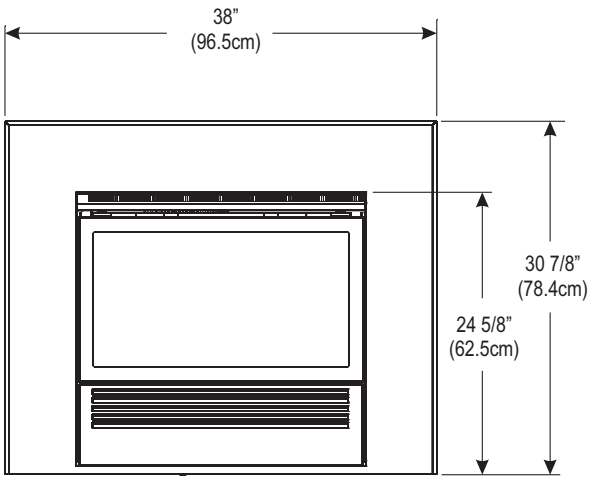
SPECIFICATIONS



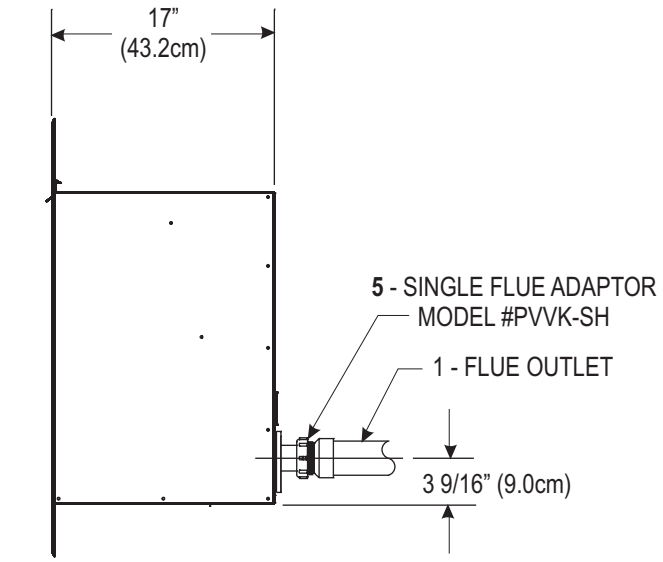
Heater In Wall - 35" Picture Frame Surround
FWK28(BL,CM,HP,SS) - Contains surround, hood, and lower front

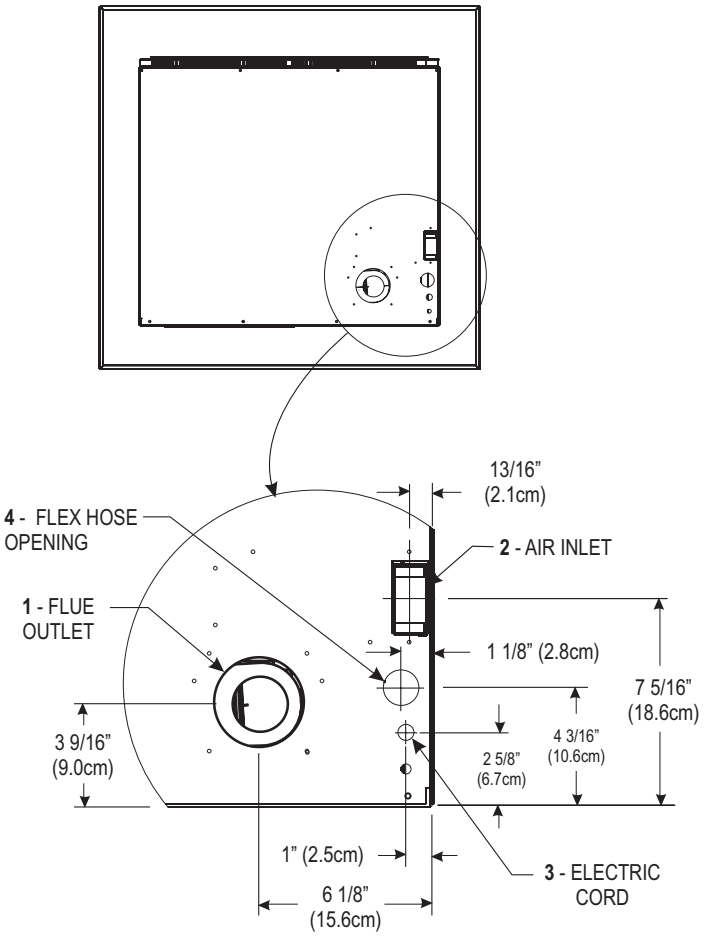


Heater - 35" Surround Kit
FFK28(BL,CM,HP,SS) - Contains surround, hood, & lower front



Heater - 38" Surround
FIK28(BL,CM,HP,SS) - Contains surround, hood, & lower front





Index No.	Description
1	Flue Outlet 1 1/2" PVC Pipe
2	Air Inlet
3	Electric Cord
4	3/8" Flare Connection (Inside)
5	Single Flue Adaptor Model #PVVK-SH (required)

CLEARANCE TO COMBUSTIBLES

Insert Models

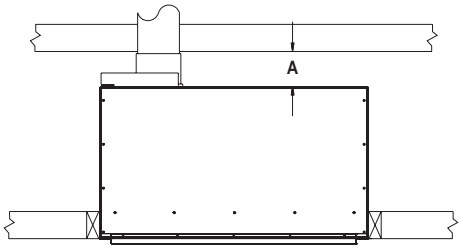


Figure 3

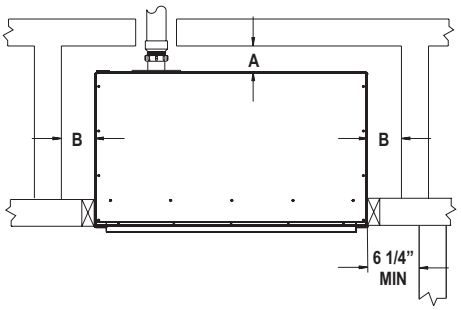


Figure 4

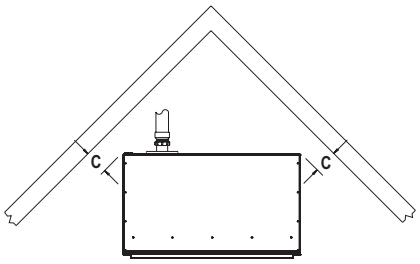
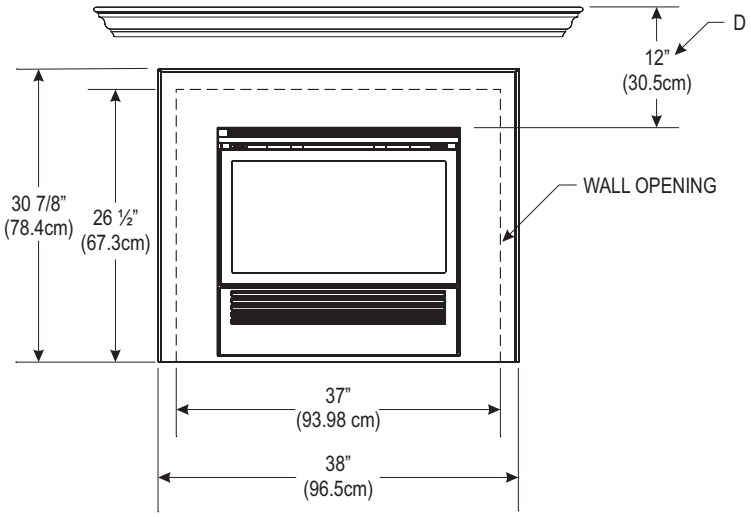


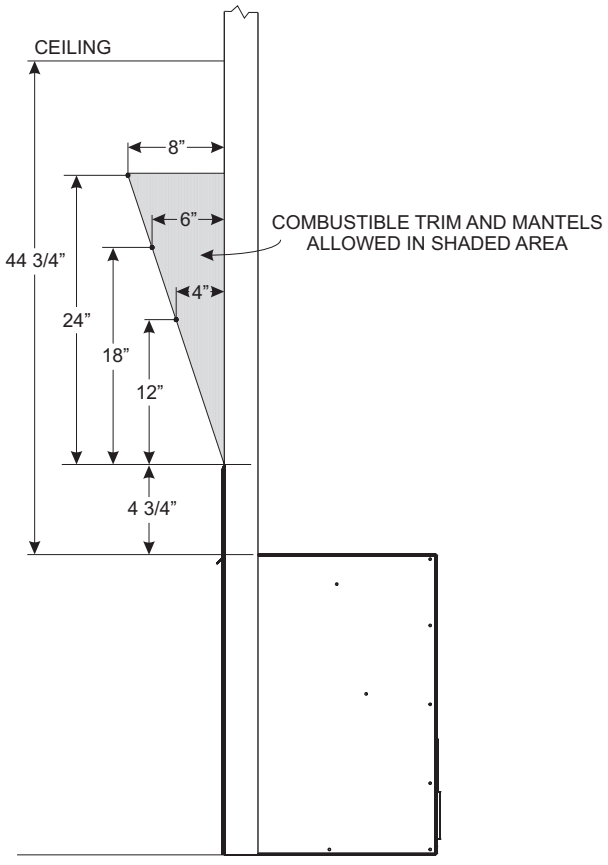
Figure 5

Freestanding Units		
A	Rear Wall to Heater	0” (2” Single Flue and 1 1/4” Direct Vent for Serviceability)
B	Side Wall to Heater	0”
C	Corner Installation	0”
D	Mantel Clearance	See Figure 7

Fireplace Insert



Single Flue
Requires surround for combustion air.
Do not cover surround louver.
Figure 6



Mantel and Ceiling Clearances
Figure 7

Note: The Mantis Power-Vent High-Efficiency Fireplace has been tested and approved for zero clearance to combustible materials. Empire Comfort Systems, Inc. recommends that clearances as listed above should be maintained to allow for removal of the product for servicing.

ROUGH FRAMING DIMENSIONS

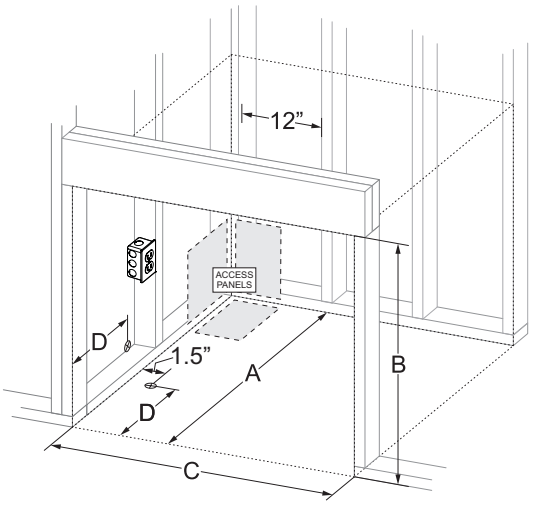


Figure 8

FLAT FRONT

A - 23 1/2” MIN. WITH 90° STREET ELBOW

B - 24 3/4”

C - 28 3/16” MIN., 31” RECOMMENDED FOR SERVICEABILITY.

NOTE: HEATER WILL BE 0” CLEARANCE ON RIGHT AND 3” ON LEFT FOR SERVICEABILITY.

D - 4” - 6”

NOTE: ONLY ONE ACCESS PANEL (FIGURE 8) IS NEEDED. INSTALLER TO DETERMINE BEST OPTION.

INSERT INTO MASONRY FIREPLACE

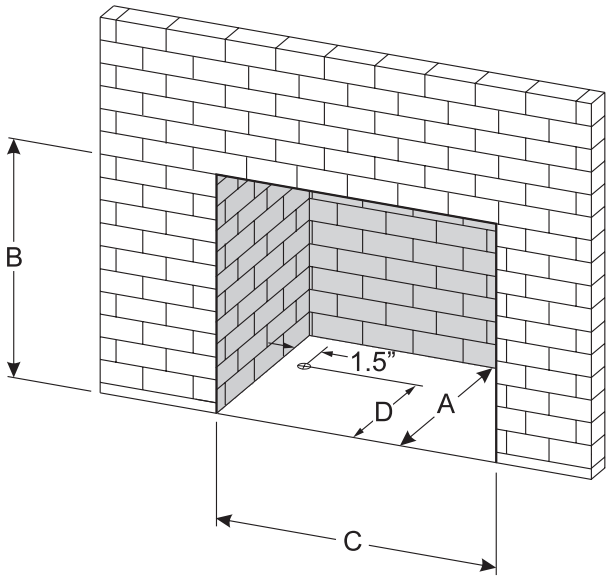


Figure 9

A - 23 1/2” WHEN USING FI28(BL,CM,HP,SS) SURROUND

B - 24 3/4” MIN. DIRECT
29” MAX

C - 28 3/16” MIN. WITH SURROUND
37” MAX. WITH 38” SURROUND

WALL CLEARANCES

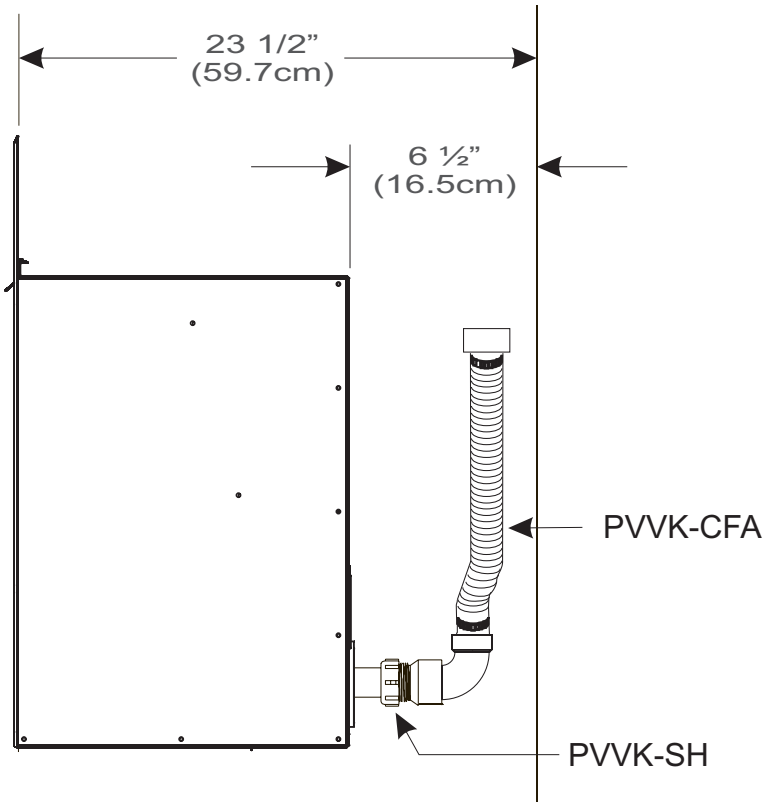


Figure 10

LOG SET INSTALLATION INSTRUCTIONS

Log Installation

The positioning of the logs is critical to the safe and clean operation of this heater. Sooting and other problems may result if the logs are not properly and firmly positioned in the appliance.

Note: Before you begin: Do not handle these logs with your bare hands! Always wear gloves to prevent skin irritation. After handling logs, wash your hands gently with soap and water.

Note: See Page 41 for Glass Assembly removal and replacement.

Log Placement

1. Place Rear Log (A) onto rear log support. The notch in the Rear Log fits over the rear Hot Surface Ignitor.
2. Place Left Log (B) on left rear log support shelf. The charred portion of the log must face inward.
3. Place Middle Log (D) on front log support between the front and back burners.
4. Place Front Right Log (F) on right side of Firebox bottom. Notch in bottom of Front Right Log fits over the front Flame sensor. See Figure 11A.
5. Place Front Left Log (E) on left side of Firebox bottom. Notch in bottom of Front Left Log fits over front Hot Surface Ignitor. See Figure 11B.
6. Place Right Log (C) on right rear log support shelf. Top of log rests on Rear Log (A) and bottom of log rests on Firebox bottom. Charred portion of log must face inward.
7. Place Left Top Long Log (G) on the pin on Left Log (B). The upper left leg of Left Top Log will rest on Rear Log (A). The upper right leg of Left Top Log will rest on Middle Log (D).
8. Place Right Top Long Log (H) on the pin on the Right Log (C). The bottom left leg of the Right Top Log will rest in the indent on the right side of the Middle Log (D). The bottom right leg of the Right Top Log will rest in the indent in the Front Right Log (F).

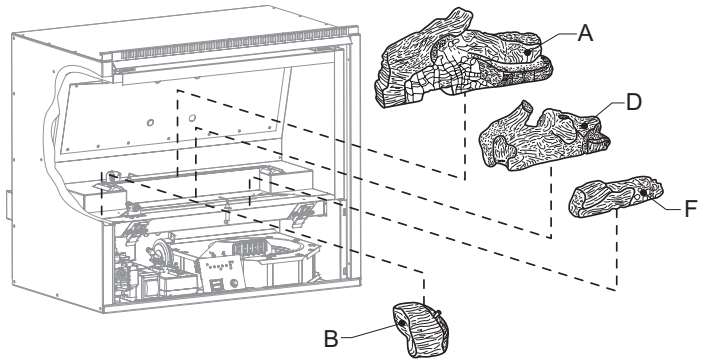


Figure 11A

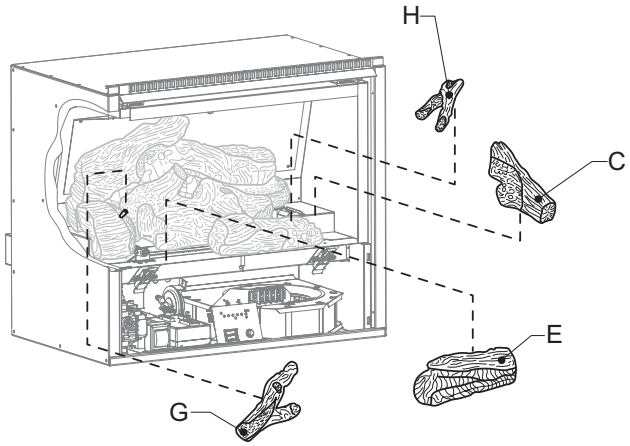


Figure 11B

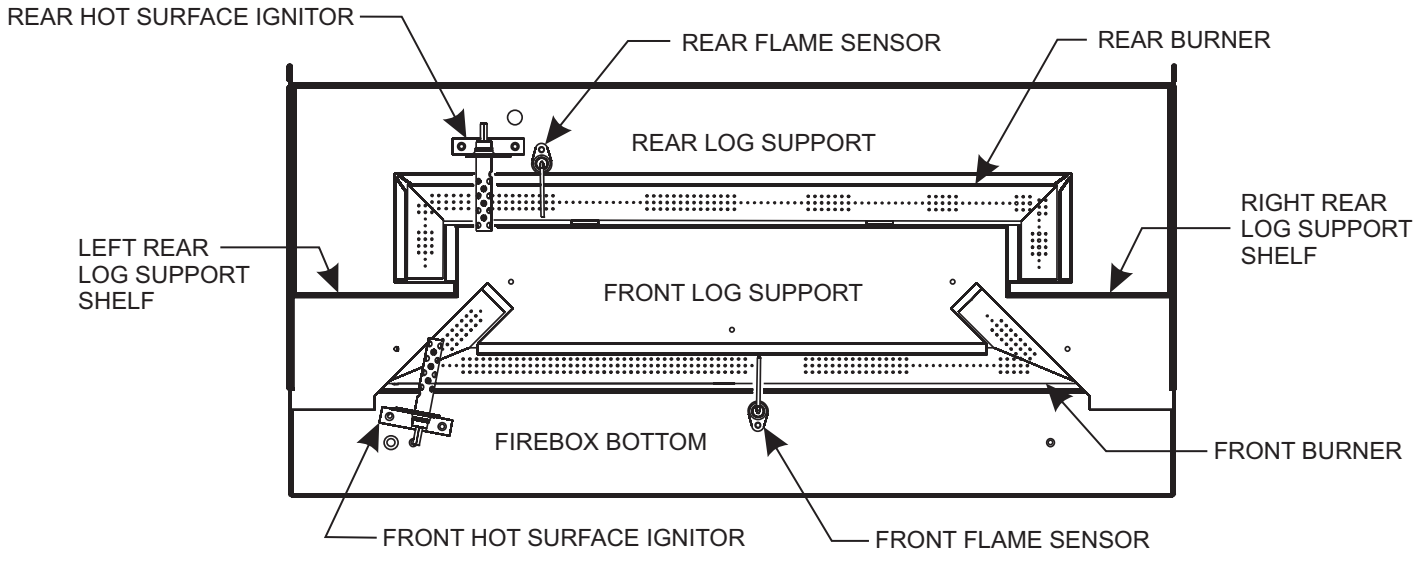
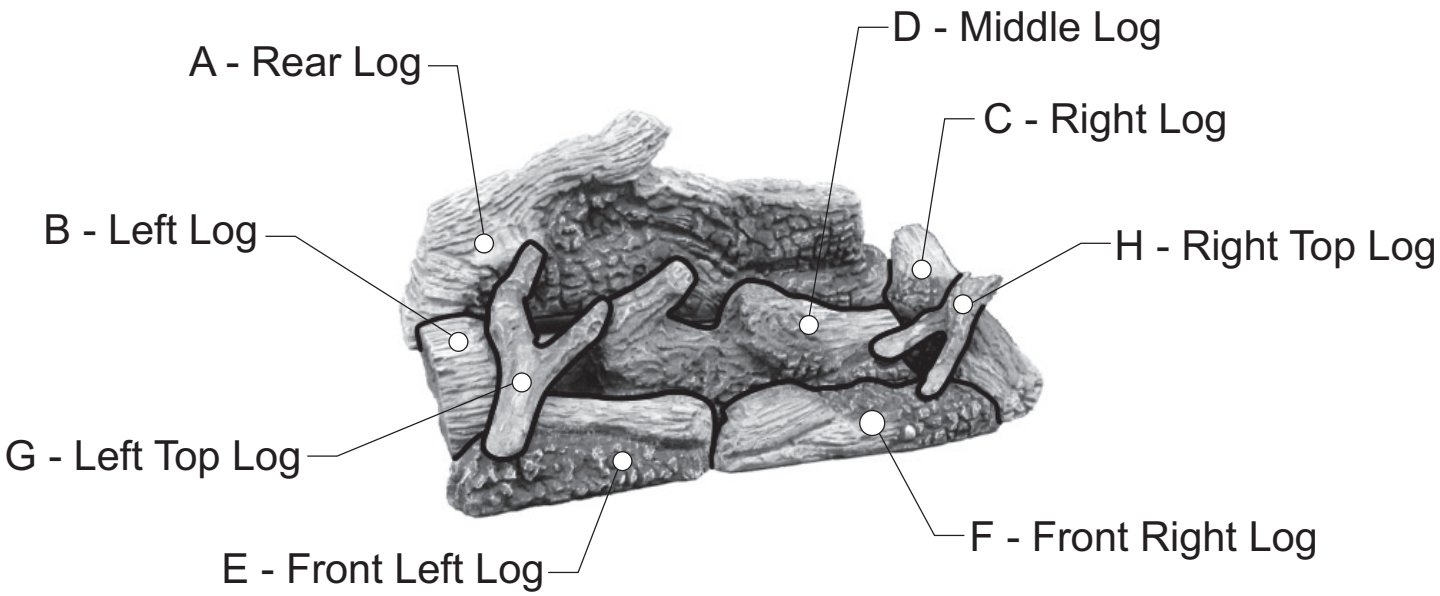


Figure 12

LOG SET INSTALLATION INSTRUCTIONS



LOG SET DIAGRAM - A

The Gas Log Kit contains the following:

Index Letter	Log Description
A	Rear Log
B	Left Log
C	Right Log
D	Middle Log
E	Front Left Log
F	Front Right Log
G	Left Top Log
H	Right Top Log

Figure 13

VENT EXAMPLES FOR SINGLE FLUE

Max Vent Run - 40 ft. Equivalent With Three (3) 90° Elbows

Special Note: The vent terminal 90° elbow and first 90° elbow off back of the heater, when within 6" (15.2 cm), do not contribute to the overall vent length measurement. For each 45° elbow installed in the horizontal run, the length of the horizontal run MUST be reduced by 1.5 feet (45 cm). This does not apply if the 45° elbows are installed on the vertical part of the vent system. Reduce the length of the horizontal run 3 feet (91.4 cm) for every 90° elbow.

Note: On horizontal runs, a P.V.C. support clamp needs to be installed every 3 feet. No "sags" in horizontal vent runs; water will settle in the pipe.

When installing a single flue horizontal, the minimum vent length protruding from the outside wall is 6" (15.2 cm). See Figure 14.

Minimum vent from the rear of the unit is 12".

Note: Horizontal discharge 90° elbow must be pointed downward. See Figure 15. All horizontal runs require either a 1/4" per foot rise to run condensation back to the heater, or a 1/4" per foot downward slope to run condensation away from the heater.

Note: All PVC vent run piping can be purchased at a local hardware store. Schedule 40 PVC pipe should be used and cemented. PVVK-CFA Flex Kit and PVVK-SH Horizontal Vent Adaptor Kit are available from Empire Comfort Systems, Inc.

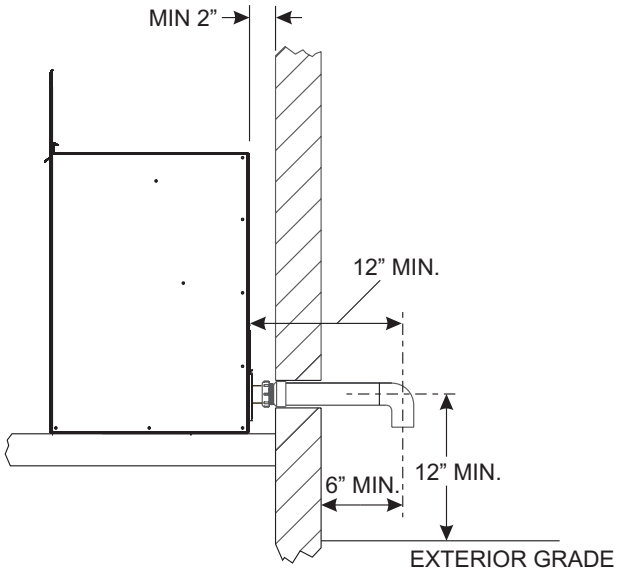


Figure 14
Single Flue - Straight Out Back
Min 6" Outside Wall
Min 2" From Unit to Wall for Intake Air
Min vent length 12"

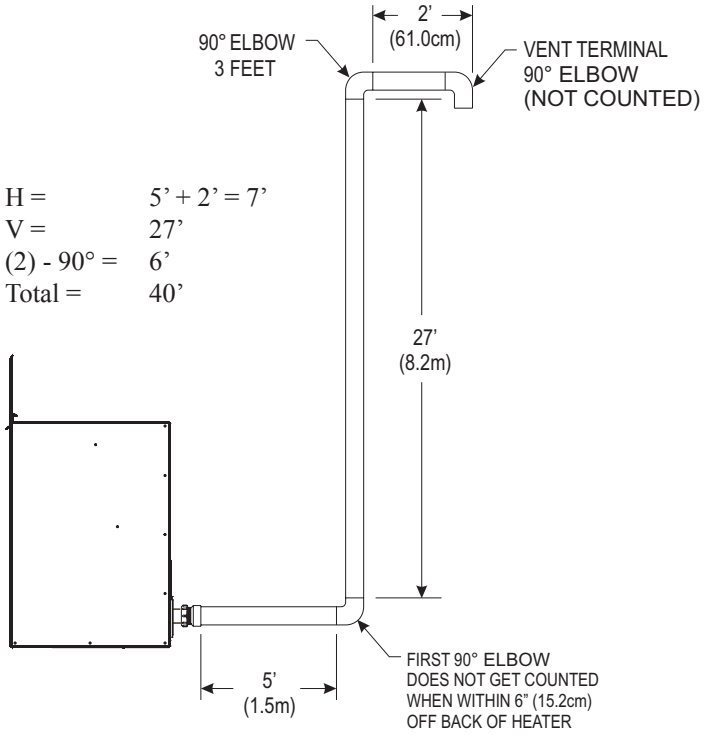


Figure 15
Single Flue - Horizontal Tall Vent Run
Example Calculation Max Vent Run 40'

VENT EXAMPLES FOR SINGLE FLUE (cont.)

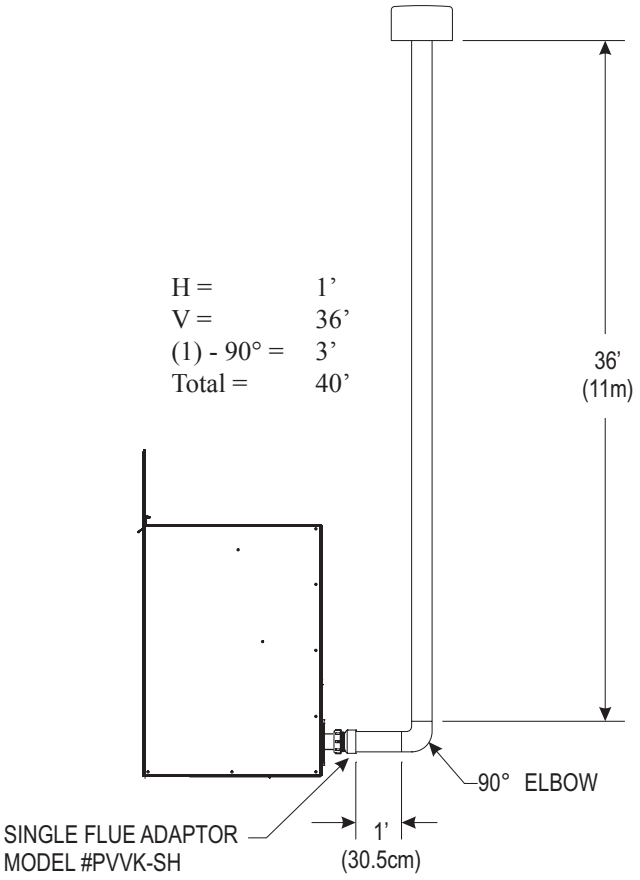
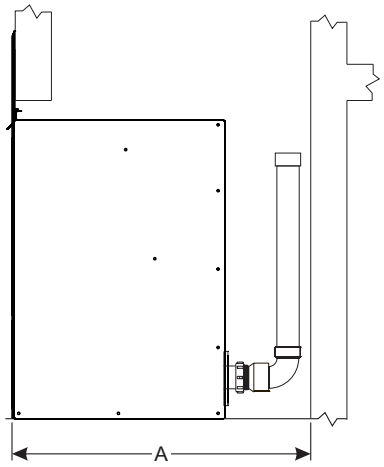
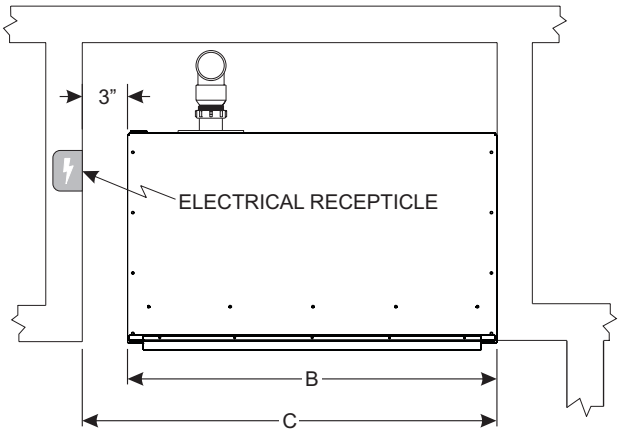


Figure 16
Single Flue - Vertical Vent Run

Flat Front Insert ONLY Dimensions



Flat Front Side View



A - 23 1/2” Min. with 90° Street Elbow

B - 28 3/16” (716 mm)

C - 28 3/16” (716 mm) Min., 31 3/16” (792 mm) Recommended for serviceability.

Note: Heater will be 0” clearance on right and 3” on left for serviceability.

Figure 17
Top View

VENT EXAMPLES FOR SINGLE FLUE (cont.)

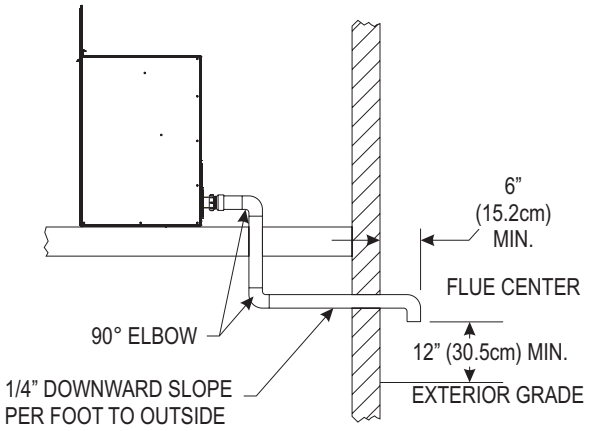
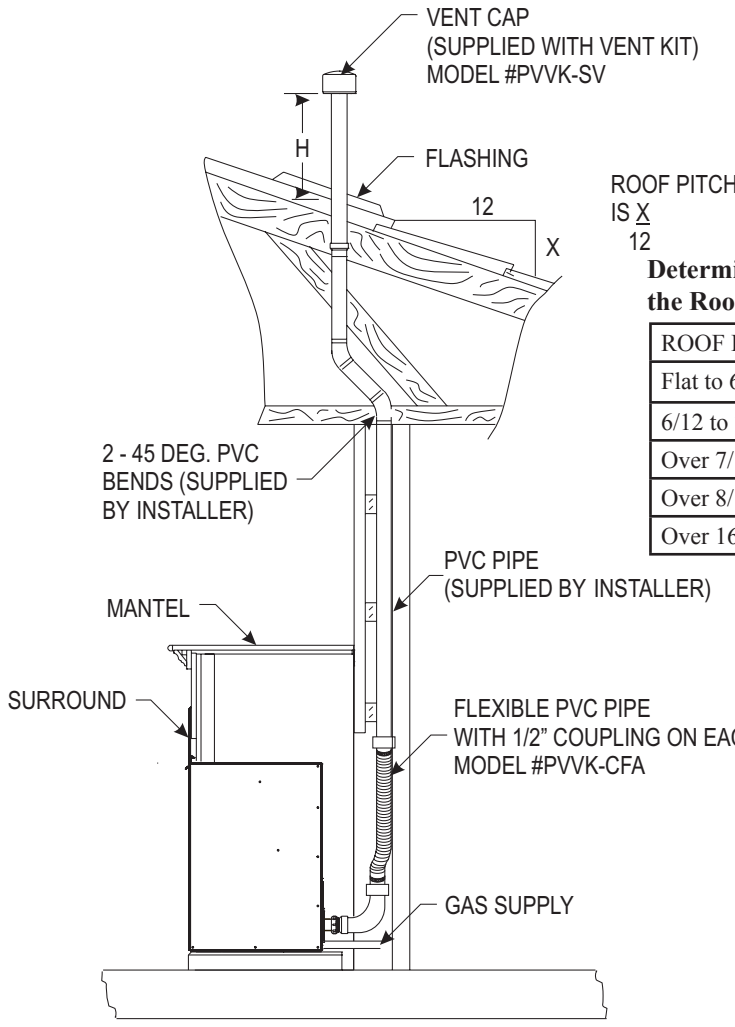


Figure 18
Minimum Exterior Grade Dimension - Single Flue, Horizontal Venting Below Floor



Determining Minimum Vent Height Above the Roof

ROOF PITCH	H (Min.)
Flat to 6/12	12" (305 mm)
6/12 to 7/12	15" (381 mm)
Over 7/12 to 8/12	18" (457 mm)
Over 8/12 to 16/12	24" (610 mm)
Over 16/12 to 21/12	36" (914 mm)

Figure 19
Single Flue - Vertical Vent Run
with 45 degree elbows

WARNING: Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety. These specifications are summarized in Figure 19.

PVVK-CFA FLEX VENT KIT

Available from Empire Comfort Systems, Inc.

The flex vent kit is a flexible vent hose that is 42” in length. The flex vent kit will be used when installing a Mantis into an existing fireplace. The flex vent kit can be cut down, but can only be cut from one end.

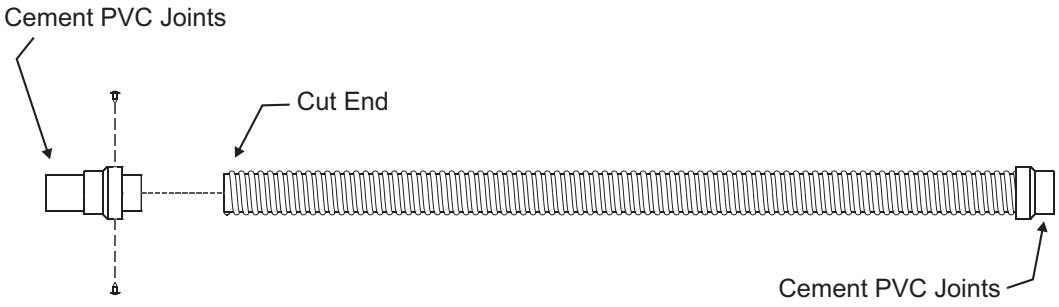
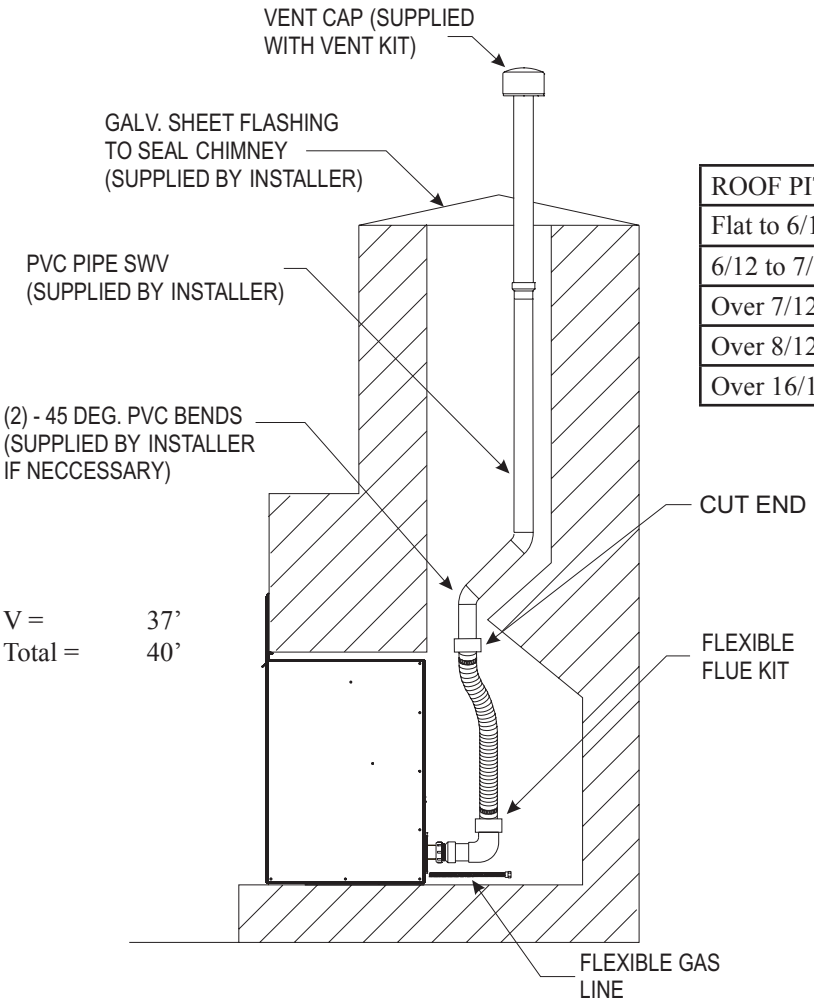


Figure 20

Once length is determined, install two (2) 10 x 1/2” screws into the adaptor assembly to secure the adaptor assembly to the flex hose. Using PVC cement, cement all PVC joints of the flex vent kit to the remaining PVC vent run.

Determining Minimum Vent Height Above the Roof

WARNING: Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety.


VENT CAP (SUPPLIED WITH VENT KIT)
GALV. SHEET FLASHING TO SEAL CHIMNEY (SUPPLIED BY INSTALLER)
PVC PIPE SWV (SUPPLIED BY INSTALLER)
(2) - 45 DEG. PVC BENDS (SUPPLIED BY INSTALLER IF NECCESSARY)
V = 37’
Total = 40’
CUT END
FLEXIBLE FLUE KIT
FLEXIBLE GAS LINE

ROOF PITCH	H (Min.)
Flat to 6/12	12” (305 mm)
6/12 to 7/12	15” (381 mm)
Over 7/12 to 8/12	18” (457 mm)
Over 8/12 to 16/12	24” (610 mm)
Over 16/12 to 21/12	36” (914 mm)

Figure 21 - Venting for Existing Fireplace Installation

PVVK-SH HORIZONTAL VENT ADAPTOR KIT

Available from Empire Comfort Systems, Inc.

1. Install foam gasket.

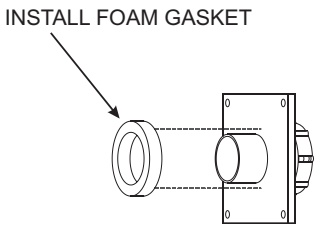


Figure 22

2. Attach flue adaptor to back of heater with four (4) screws.

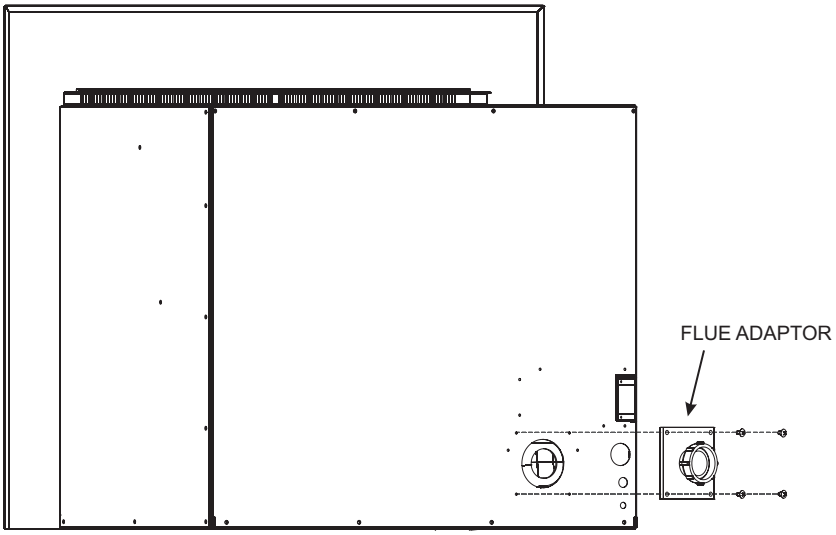


Figure 23

8-8 x 1/2" Phillips Truss Head Screw

3. Install plastic gasket and screw threaded connector to the flue adaptor. When these connections are made, continue with your vent run. Cement all PVC joints on vent run.

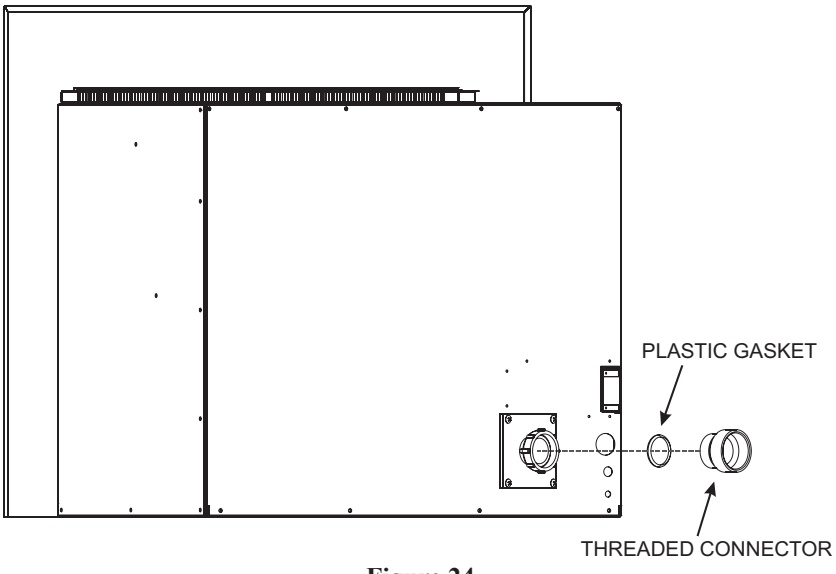


Figure 24

Note: No PVC cement is needed to install flue adaptor kit.

HORIZONTAL EXAMPLES FOR COLINEAR DIRECT VENT

Max Vent Run - 40 ft. Equivalent With Three (3) 90° Elbows

Special Note: The vent terminal 90° elbow and first 90° elbow off back of the heater, when within 6" (15.2 cm), do not contribute to the overall vent length measurement. For each 45° elbow installed in the horizontal run, the length of the horizontal run MUST be reduced by 1.5 feet (45 cm). This does not apply if the 45° elbows are installed on the vertical part of the vent system. Reduce the length of the horizontal run 3 feet (91.4 cm) for every 90° elbow.

Note: On horizontal runs, a P.V.C. support clamp needs to be installed every 3 feet. No "sags" in horizontal vent runs; water will settle in the pipe.

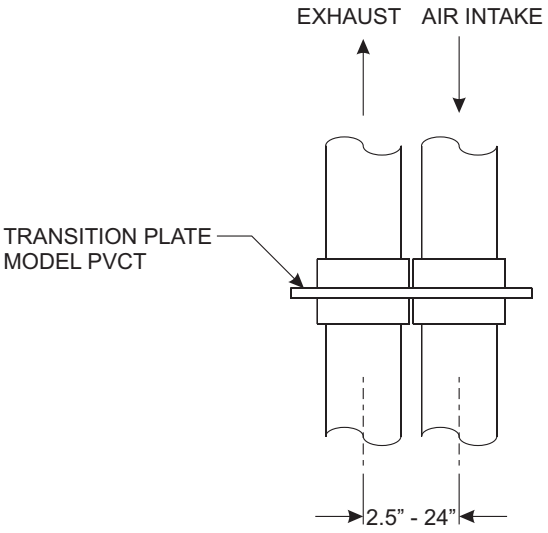


Figure 25

In both vertical and horizontal colinear direct vent applications, a colinear transition plate model PVCT can be used to minimize clearances between intake and exhaust pipes.

For horizontal colinear direct venting, exhaust and intake air, cap pipes with 90º elbows, pointed downward.

Note: If transition plate (model PVCT) is used, the measurement for center to center of the pipes will be 2.5". If the transition plate (model PVCT) is not used, the measurement for center to center of the pipes can be 3" to 24" maximum.

When installing a colinear horizontal, the minimum vent length protruding from the outside wall is 6" (15.2 cm) for air intake and 9" for exhaust. See Figure 26.

Note: Horizontal discharge 90° elbow must be pointed downward. See Figure 28. All horizontal runs require either a 1/4" per foot rise to run condensation back to the heater, or a 1/4" per foot downward slope to run condensation away from the heater.

Note: All PVC vent run piping can be purchased at a local hardware store. Schedule 40 PVC pipe should be used and cemented. PVCA Horizontal Colinear Direct Vent Adaptor, PVVTC Cap, PVVK-CFA Flex Kit and PVVK-SH Horizontal Vent Adaptor Kit are available from Empire Comfort Systems, Inc.

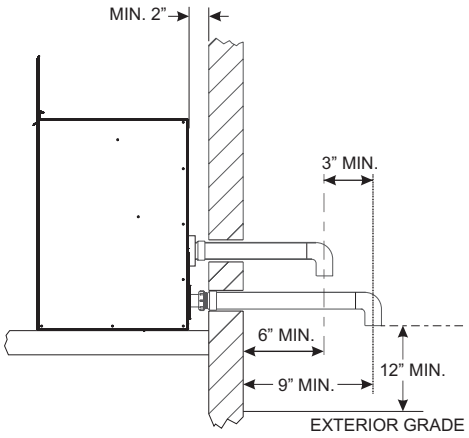


Figure 26

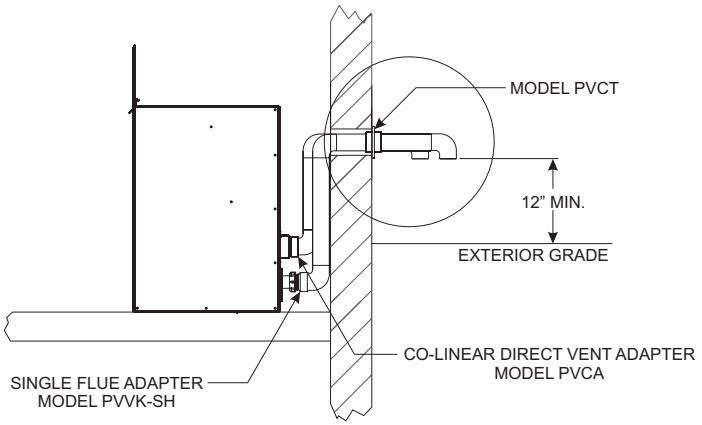


Figure 27

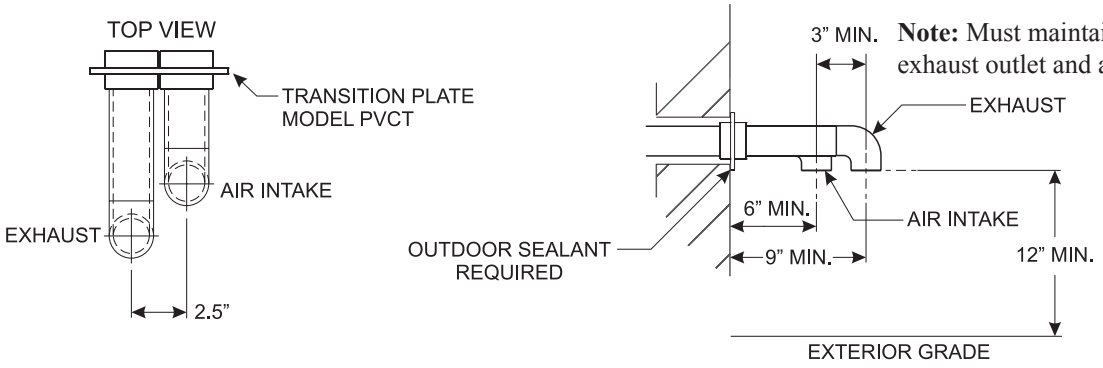


Figure 28
Enhanced top view of Figure 27

VERTICAL EXAMPLES FOR COLINEAR DIRECT VENT

Special Note: The vent terminal (PTrap, Vent cap or two 90° elbows) and first 90° elbow off back of the heater, when within 6" (15.2 cm) off back of the heater, do not contribute to the overall vent length measurement. For each 45° elbow installed in the horizontal run, the length of the horizontal run MUST be reduced by 1.5 feet (45 cm). This does not apply if the 45° elbows are installed on the vertical part of the vent system. Reduce the length of the horizontal run 3 feet (91.4 cm) for every 90° elbow.

Note: Exhaust must be a minimum of 3" above air intake inlet.

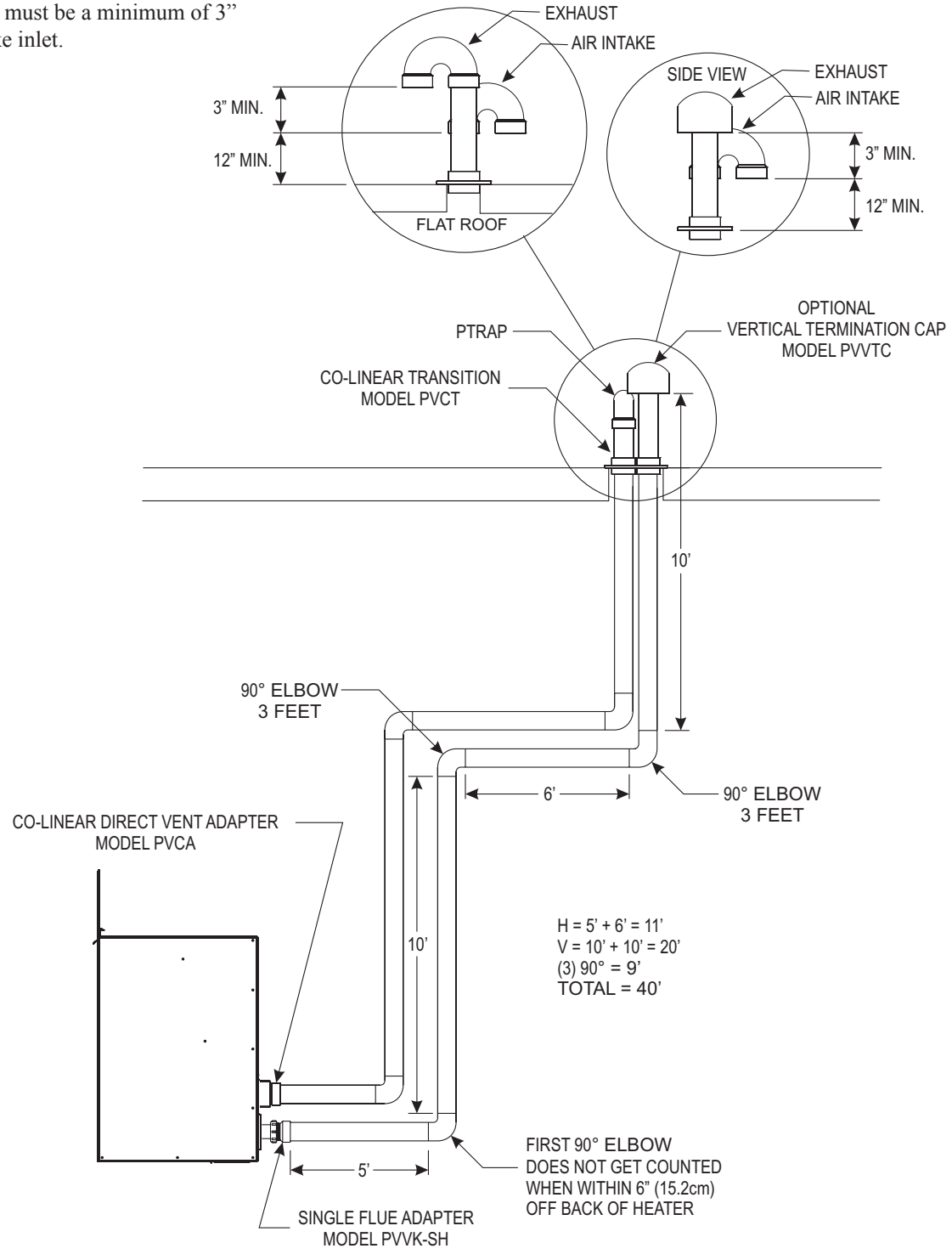


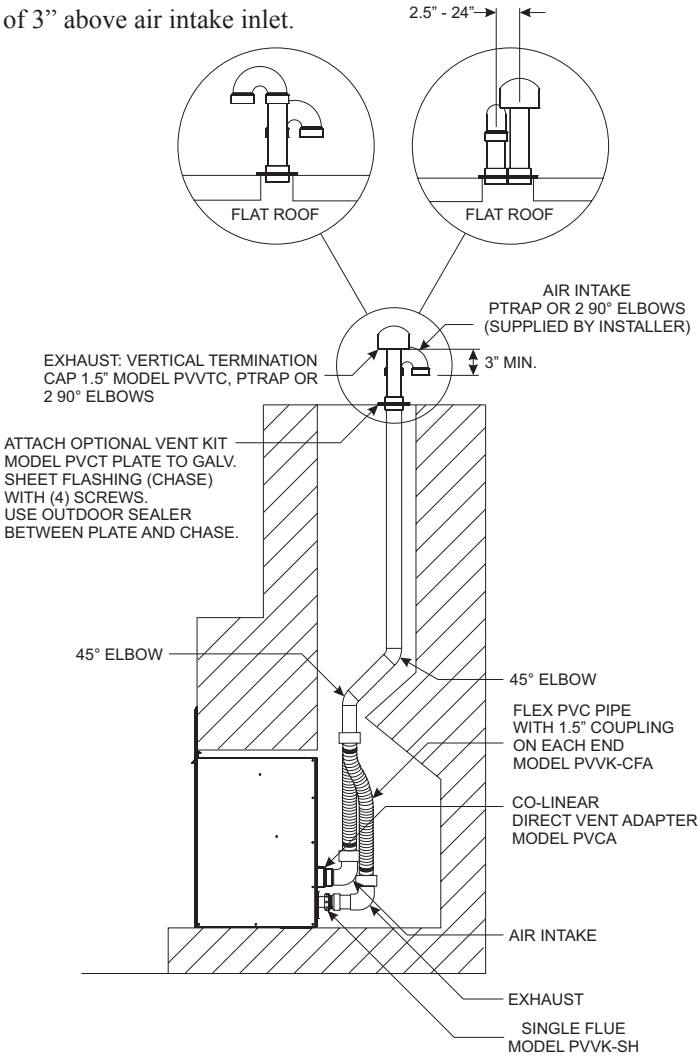
Figure 29
Calculation example of vent run maximum 40'

Determining Minimum Vent Height Above the Roof

WARNING: Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety.

VERTICAL EXAMPLES FOR COLINEAR DIRECT VENT

Note: Exhaust must be a minimum of 3” above air intake inlet.

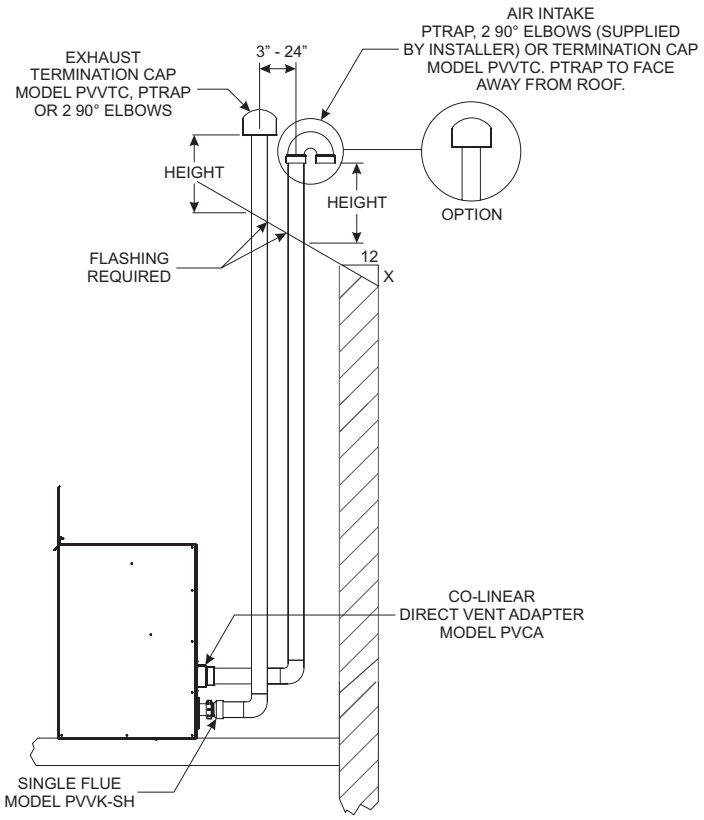


Colinear Direct Vent - Insert Installation
Figure 30

Note: See Figure 21, Page 20.

Determining Minimum Vent Height Above the Roof

WARNING: Major U.S. building codes specify minimum chimney and/or vent height above the rooftop. These minimum heights are necessary in the interest of safety. These specifications are summarized in Figure 31.



ROOF PITCH	H (Min.)
Flat to 6/12	12” (305 mm)
6/12 to 7/12	15” (381 mm)
Over 7/12 to 8/12	18” (457 mm)
Over 8/12 to 16/12	24” (610 mm)
Over 16/12 to 21/12	36” (914 mm)

Colinear Direct Vent - Pitched Roof Installation
Figure 31

In both vertical and horizontal colinear direct vent applications, a colinear transition plate model PVCT can be used to minimize clearances between intake and exhaust pipes.

For exhaust and intake air, cap pipes with any of the following: Vertical termination cap (model #PVVTC), PTrap, or two 90º elbows. When transition plate (model PVCT) is used, two termination caps (model PVVTC) may NOT be used.

See Figure 31, Page 24.

Note: If transition plate (model PVCT) is used, the measurement for center to center of the pipes will be 2.5”. If the transition plate (model PVCT) is not used, the measurement for center to center of the pipes can be 3” to 24” maximum.

PVCA HORIZONTAL COLINEAR DIRECT VENT ADAPTOR

Colinear adaptor to be used in conjunction with single flue horizontal vent kit PVVK-SH. The two attachments are used for colinear direct vent installation.

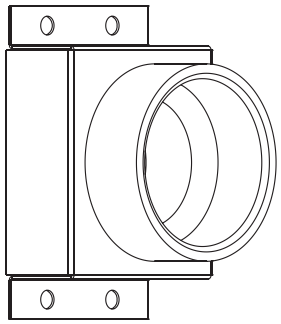


Figure 32 - Colinear adaptor

1. Attach colinear adaptor to back of heater with two (2) screws.

8-8 x 1/2” Phillips Truss Head Screw

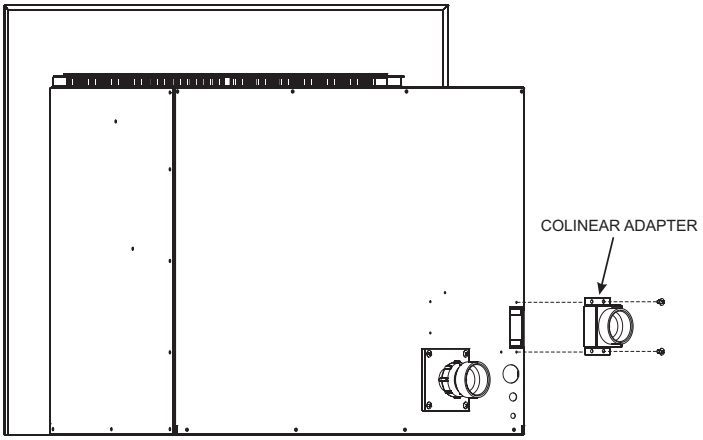


Figure 33

2. When adapter is connected, continue with your vent run. Cementing PVC joint is recommended, but not required on colinear fresh air intake adaptor.

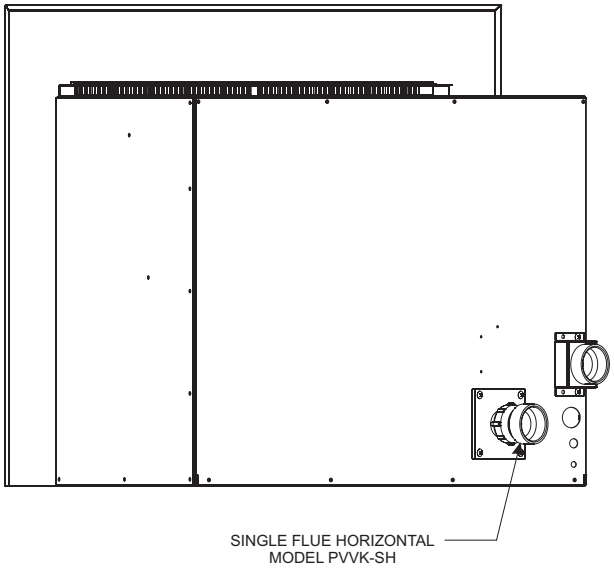


Figure 34

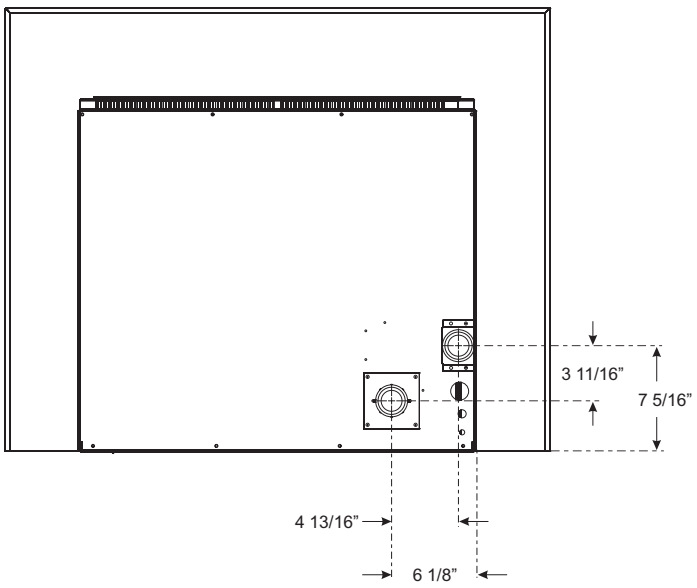


Figure 35

PVVTC TERMINATION CAP VENT KIT

Available from Empire Comfort Systems, Inc.

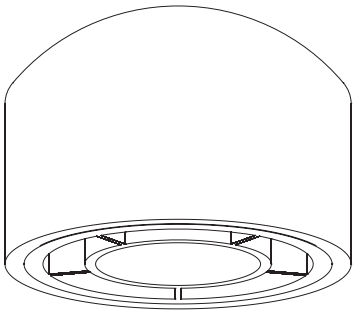


Figure 36 - Termination Cap

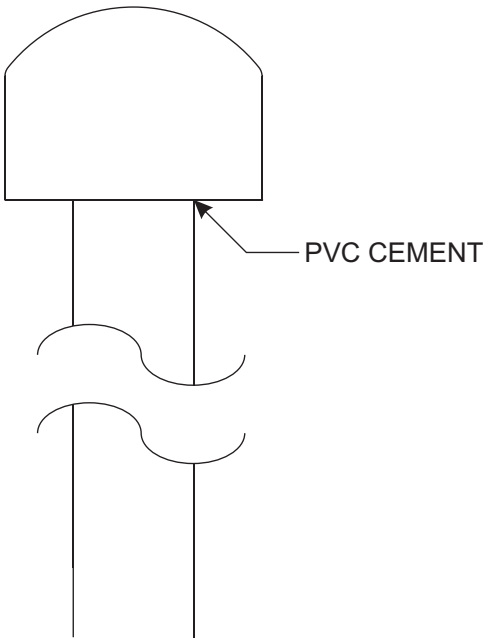


Figure 37

Vertical exhaust cap used with 1 1/2” PVC pipe installation.
Termination cap also used with colinear transition plate model PVCT.
Refer to instruction manual for venting examples.

PVCT COLINEAR TRANSITION VENT KIT

Available from Empire Comfort Systems, Inc.

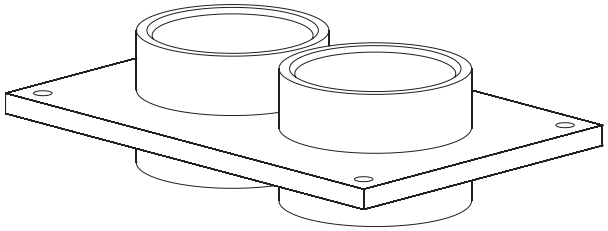


Figure 38 - Colinear Transition Plate

Note: Exhaust must be a minimum of 3” above air intake inlet.

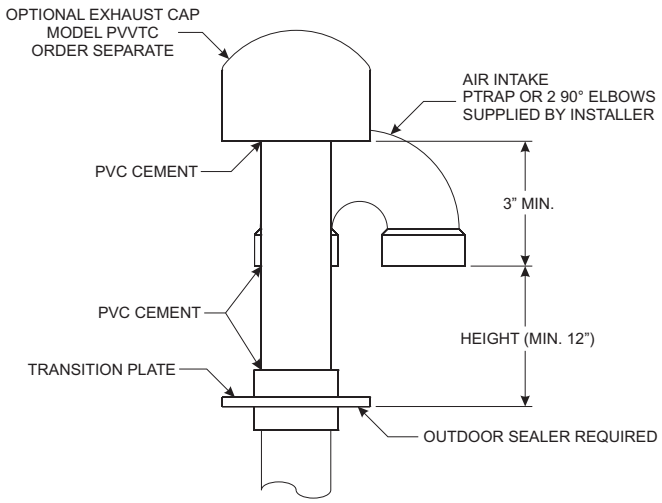


Figure 39

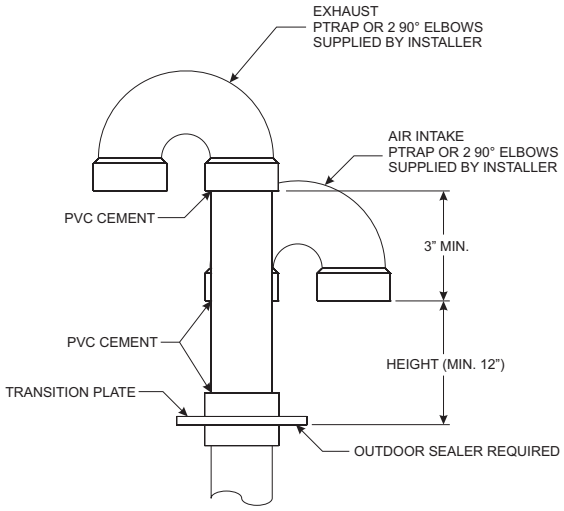
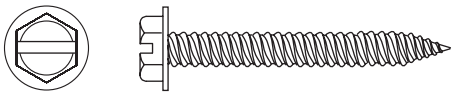


Figure 40

Flat Roof or Chimney Application

1. Attach plate to chimney chase or flat roof with four (4) screws. Use outdoor sealant to seal transition plate to the roof or chimney chase.



10 x 1 1/2” Hex Head Screw

2. Check local codes to determine air intake height from roof. The minimum height for this application is 12”.
3. Cut 1 1/2” PVC pipe to correct height. Attach pipe, PTrap, and exhaust cap to plate. Glue all joints with PVC cement.

See Figure 30, Page 24.

Horizontal Application

1. Attach plate to outside wall with four (4) screws. Use outdoor sealant to seal transition plate to the wall.
2. Cut 1 1/2” PVC pipe to correct length. The minimum length for this application is 9” for the exhaust and 6” for the air intake. Glue all joints with PVC cement.

DIRECT VENT INSTALLATION INSTRUCTIONS

PVVK-24H and PVVK-48H Vent Kit available from Empire Comfort Systems, Inc.

Note: Do not glue intake or exhaust pipes to Direct Vent Adaptor for serviceability.

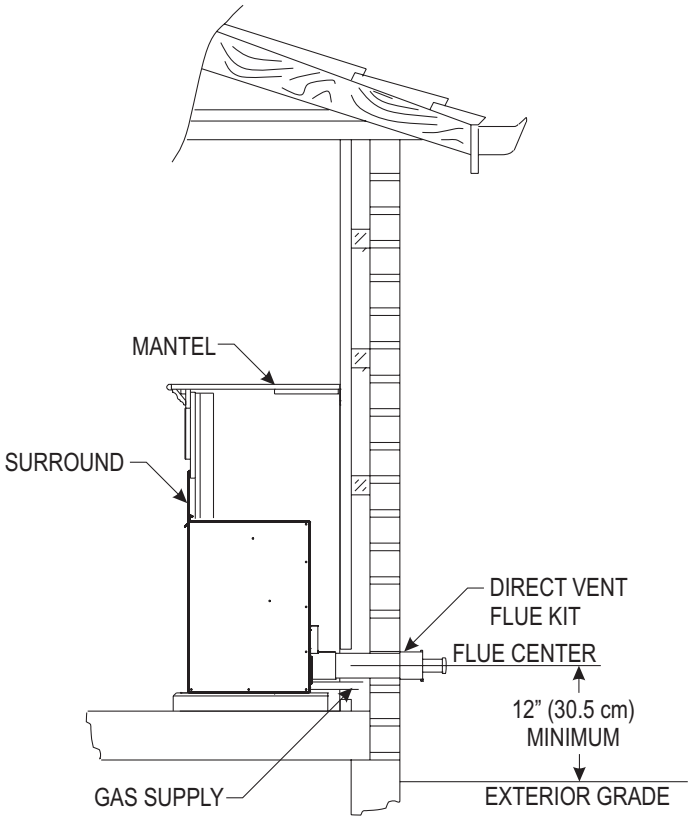


Figure 41
Horizontal Venting

Installation on Rugs and Tile

If this appliance is to be installed directly on carpeting, tile, or other combustible material, other than wood flooring, the appliance shall be installed on a metal or wood panel extending the full width and depth of the appliance.

The base referred to above does not mean the fire-proof base as used on wood stoves. The protection is primarily for rugs that may be extremely thick and light-color tile that can discolor.

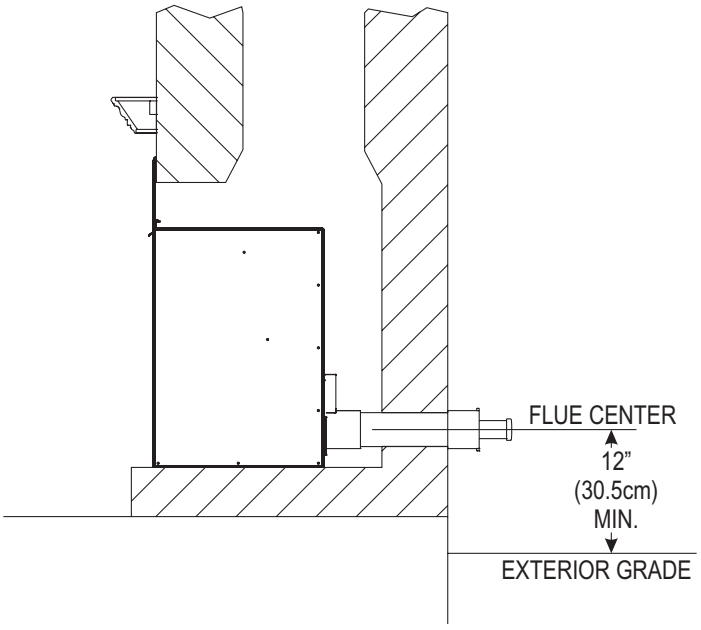


Figure 42
Minimum Exterior Grade Dimension

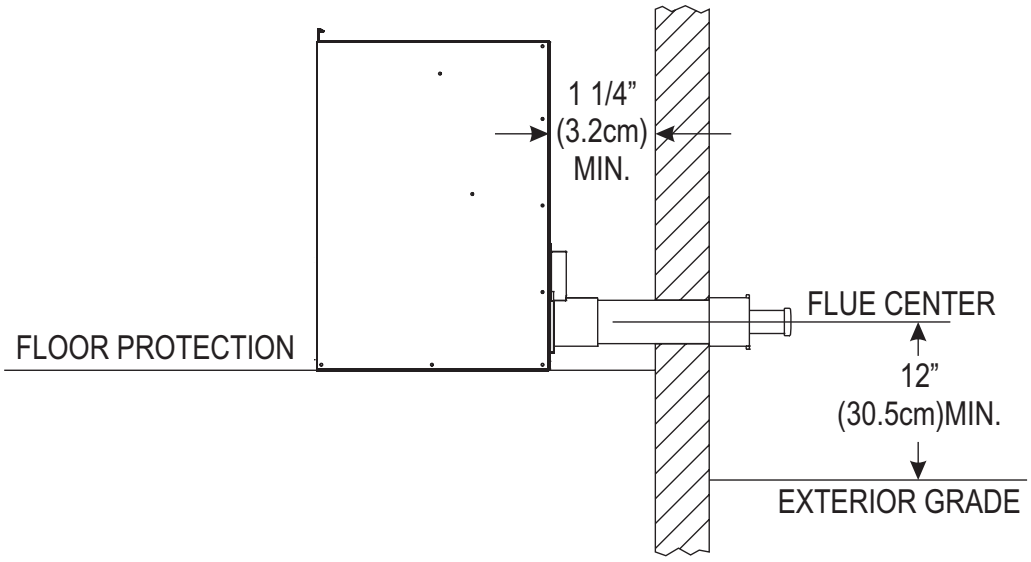


Figure 43
Minimum Exterior Grade Dimension - Existing Fireplace Installation

PVVK-24H AND PVVK-48H VENT KIT

Available from Empire Comfort Systems, Inc.

Step 1. Install foam gasket on back side of co-axial direct vent adaptor.

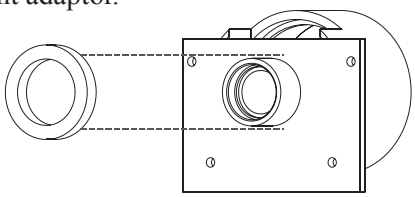


Figure 44

Step 2. Attach co-axial direct vent adaptor and gasket (4 screws) to the rear of fireplace.

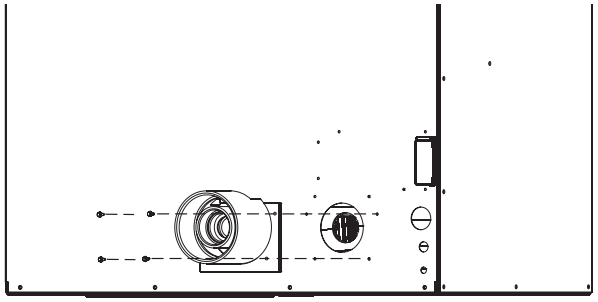


Figure 45

Step 3. Attach co-axial air-inlet duct to rear of fireplace (6 screws).

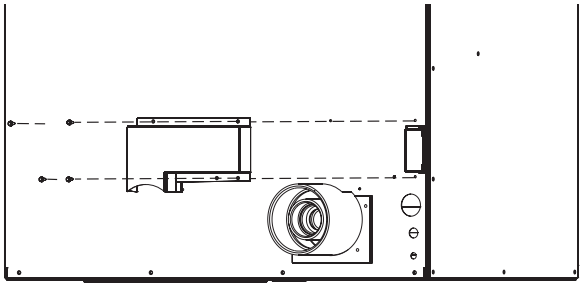


Figure 46

Step 4. Install silicone around connection between co-axial adaptor and co-axial air-inlet duct.

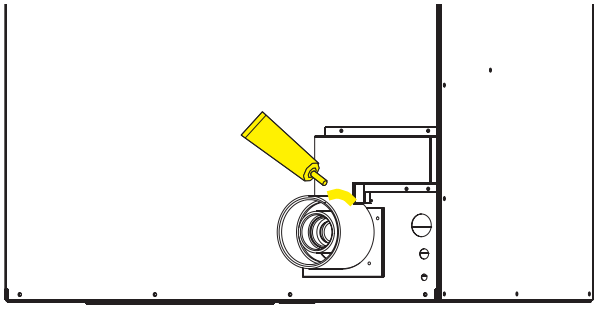


Figure 47

Step 5. Slide co-axial vent pipes into co-axial adaptor. Cut the PVC co-axial pipes at this time.
Minimum horizontal vent length 4 1/2" (11.4 cm)
Minimum tube length 3 13/16" (9.7 cm)

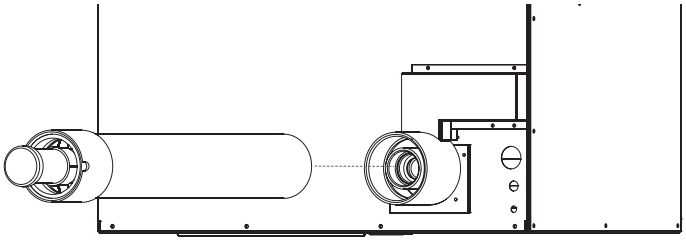


Figure 48

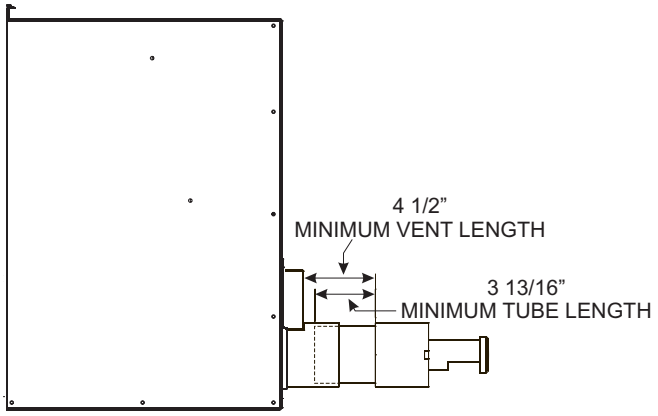


Figure 49

Step 6. Direct vent co-axial venting is completed.

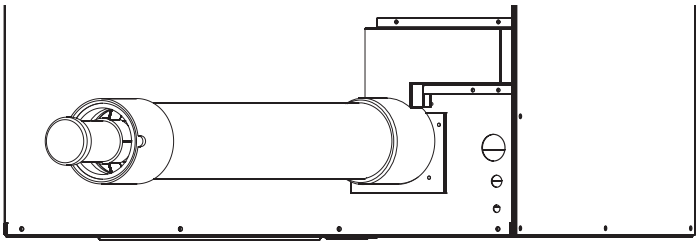
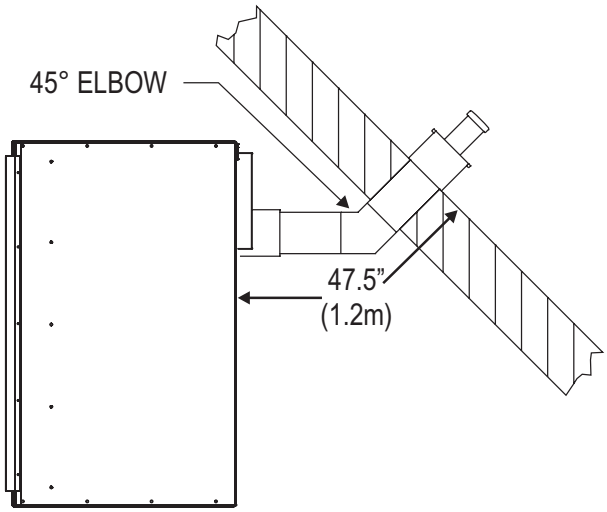


Figure 50

PVVK-24H AND PVVK-48H VENT KIT (cont.)



Horizontal Venting Maximum 47.5" (1.2 m) with 3" and 1 1/2" 45° elbow.
3" and 1 1/2" 45° elbow can be purchased from a local hardware store.
Figure 51

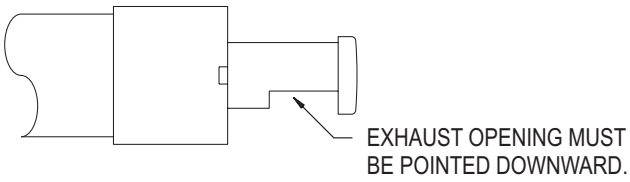
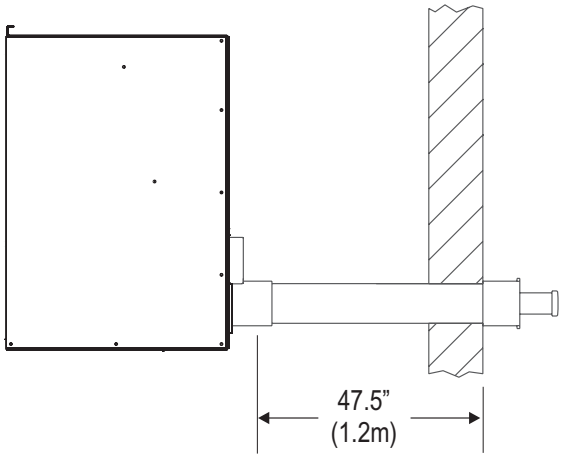


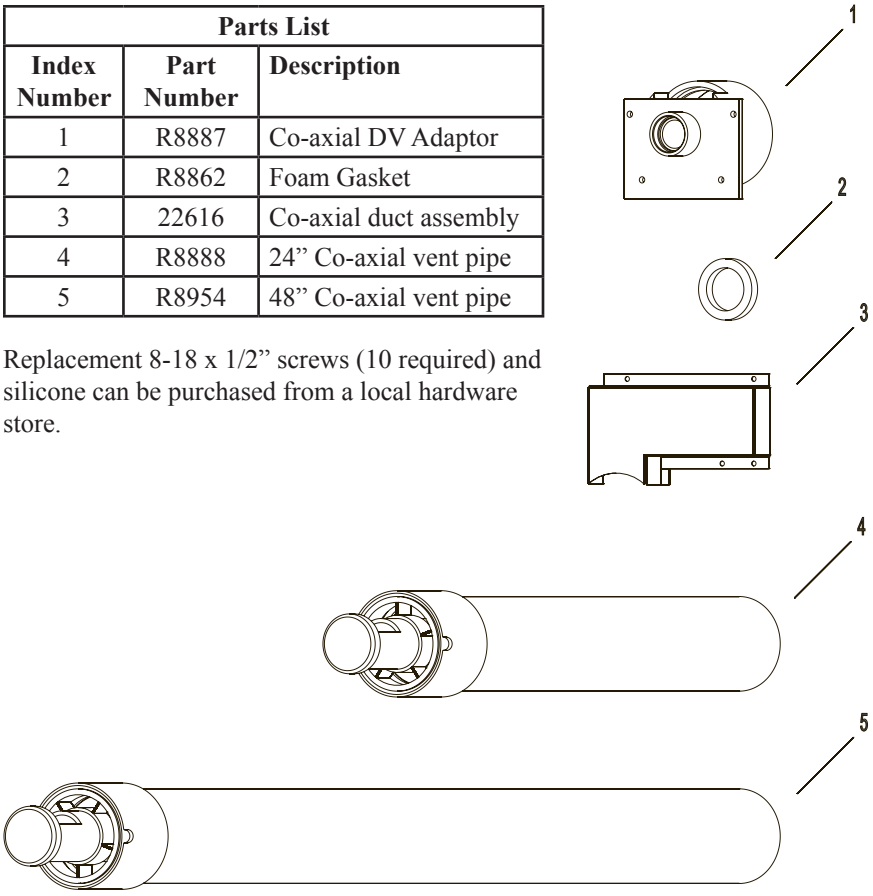
Figure 52 - Direct Vent System Building Exterior View



Maximum Horizontal Venting - 47 1/2" (1.2 m)
Minimum Horizontal Venting - 4" (10.2 cm)
Figure 53

Parts List		
Index Number	**Part Number**	**Description**
1	R8887	Co-axial DV Adaptor
2	R8862	Foam Gasket
3	22616	Co-axial duct assembly
4	R8888	24" Co-axial vent pipe
5	R8954	48" Co-axial vent pipe

Replacement 8-18 x 1/2" screws (10 required) and silicone can be purchased from a local hardware store.



8-8 x 1/2" Phillips Truss Head Screw

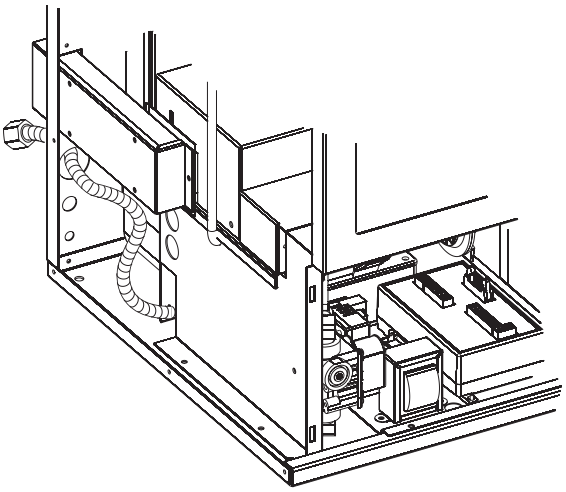
GAS CONNECTION INSTALLATION INSTRUCTIONS

GAS CONNECTION (Line Supply)

A 3/8" Flair gas line connection is supplied in the heater

GAS SUPPLY LINE TO HEATER

1. Pull flex line through top hole in back panel.
2. Connect gas supply line to flexible gas hose. Ensure that flexible gas hose is not kinked after fitting gas supply line.
3. Push excess flex line back into heater and place rubber grommet (supplied in hardware packet) over gas line at hole to prevent movement.



Shown with side removed for clarification.

Figure 54

Note: The gas supply line to the heater must be installed under conditions which will allow for easy removal of the heater from its location for servicing of the heater. For fireplace insert installations, incorporate either a copper loop into the supply line or flexible hose being used for the gas supply to the heater to allow for easy removal of the appliance.

Note: Under no circumstances should the gas supply line to the appliance be installed under conditions, which would not allow for easy removal of the appliance to carry out routine inspection and service to the appliance.

GAS CONNECTION INSTALLATION INSTRUCTIONS - IN-WALL UNITS

1. Remove access plate on the left side by removing three screws as shown in Figure 55.
2. Ppush gas line from back of unit through the access cut out on the side.
3. Remove the knockout from the access plate and insert gas line through the hole.
4. Place access plate and secure with three screws removed in Step 1.
5. Use the plastic plug supplied in the hardware package to plug the hole in the back of the unit.

Note: The gas supply line to the heater must be installed under conditions which will allow for easy removal of the heater from its location for servicing of the heater. For fireplace insert installations, incorporate either a copper loop into the supply line or flexible hose being used for the gas supply to the heater to allow for easy removal of the appliance.

Note: Under no circumstances should the gas supply line to the appliance be installed under conditions, which would not allow for easy removal of the appliance to carry out routine inspection and service to the appliance.

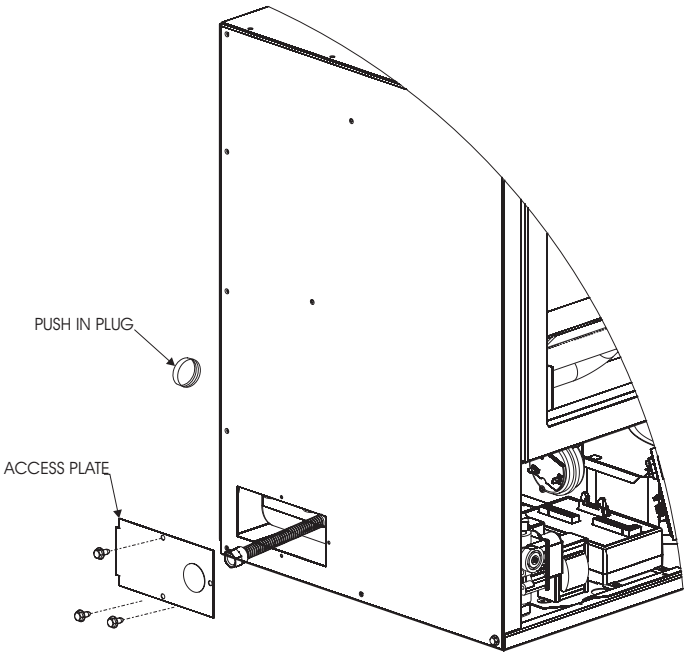


Figure 55

F(F,I,W)K28(BL,CM,HP,SS) SURROUND INSTALLATION INSTRUCTIONS

Fitting of Hood
Place the hood in the surround as shown in Figure 56 and fasten with the five screws and nuts supplied.

Fitting of Surround
Place the surround as shown in Figure 56 on the flat front heater as shown in Figure 57 and fasten to the heater with the four screws provided at points A, B, C and D.
Note: See page 41 "General Glass Information" for removing and replacing glass assembly and lower louver.

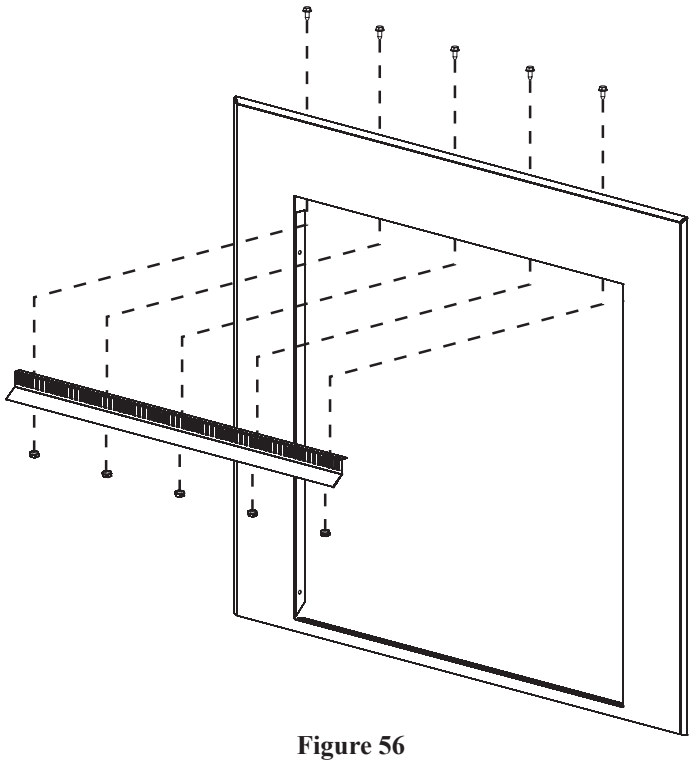


Figure 56

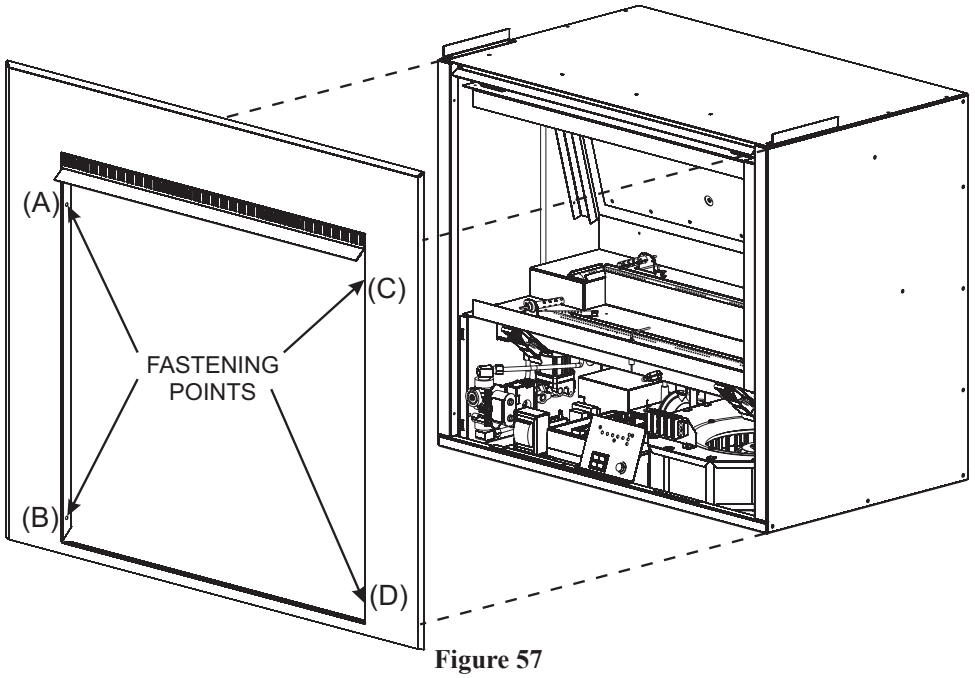


Figure 57

OPERATING INSTRUCTIONS CHECKLIST

BEFORE OPERATING THIS APPLIANCE, CAREFULLY PROCEED THROUGH THE FOLLOWING CHECKLIST

1. Read and understand these instructions before installing or operating this appliance.
2. This appliance is should be installed and repaired by a fully qualified service person who must be familiar with the installation of the Mantis Power-Vent High-Efficiency Fireplace.
3. Installers who are not familiar with the installation of this appliance should contact Empire Comfort Systems, Inc. prior to installing the appliance to avoid creating hazardous operating conditions.
4. Check and inspect the appliance for gas leaks. In the event of gas leaks, cut off the gas supply to the heater immediately and call your gas supplier or installer.
5. Check and verify that all flue venting combustion air intakes and flue outlets are unobstructed.
6. Refer to pages 17 to 19 for Single Flue pipe and page 28 for Co-axial Flue installations. Check that correct flue pipe and cap has been fitted in line with the manufacturer's specifications as illustrated in this manual pages 17 to 30.
7. Do not use alternative Flue or cap on installation other than that specified in this manual - otherwise heater will malfunction and cause hazardous operating conditions and will void the manufacturer's warranty.
8. Check and verify that flue pipe connection to the appliance when using single 1 1/2" flue pipe installation is correctly installed and secured in line with instruction in this manual, Pages 17 to 19.
9. Prior to operating the appliance, check for dust or debris on the burners. Refer to Page 42, Figure 70 and Page 43, "Cleaning Burners."
10. Check and verify that logs are place correctly as per instructions on Pages 15 to 16 of this manual. If logs are incorrectly positioned, it can create a hazardous situation, and in most instances, the heater will not operate correctly.
11. Do not light heater without logs installed, as heater will not operate properly.
12. Check and verify prior to starting the appliance, that all panels are secured in place and that the main door has been locked in position.
13. After verifying and checking all the above points, proceed to lighting instructions. Refer to pages 34 to 35.

LIGHTING INSTRUCTIONS

1. Remove lower louver panel by lifting up and pulling out.
2. Main Electrical power supply must always be switched on to the unit with the two burner switches in the off position (up) before lighting the heater.
3. Turn on main gas supply.
4. Verify that main electrical supply is switched on by checking the 115V AC power status display (Figures 61A and 58) indicator is on.
5. Burner selection: select low burn (front burner), medium burn (rear burner), or high burn (both burners). Low burn switch (Figure 60) controls the front burner only. Medium burn switch (Figure 59) controls the rear burner only. When both switches are down, they will activate both the low and medium burners, which is the high setting.
6. Heater operating LED sequence (Front Display Panel). Before starting ensure that the power L.E.D (Figure 61A) is on and burner switches are off. Switch on the heater by engaging the low and medium burner switch, this will activate the pressure switch and the exhaust fan L.E.D (Figure 61E) will be on. Also the two burner L.E.D's (Figure 61C and 61D) will start flashing for 35 seconds prior to ignition. Once both burners have ignited, the burner L.E.D's will remain on. If you can't see flame on the rear burner, but the burner L.E.D is on, then there will be flame there which will become more visible as the heater warms up. Once the heater warms up the low speed L.E.D (Figure 61F) will light and the convection fan will blow warm air from the heater. As the heater becomes warmer, the medium L.E.D (Figure 61G) will come on. When the heater has reached its highest operating temperature, all three L.E.D's will light up and the convection fan will now be running at its high speed. Refer to page 36 - Fan Operation. When the heater has been running for some time, the water pump L.E.D (Figure 61B) may come on to signal that the pump has been activated. Refer to page 36 - Automatic Humidifier Operation.

Note: Three heat settings are available for operating your Mantis heater - low, medium and high.

a. Low setting (front burner only) - engage low burn switch only (Figure 60)
b. Medium setting (rear burner only) - engage medium burner switch only (Figure 59)
c. High setting (front and rear burners).

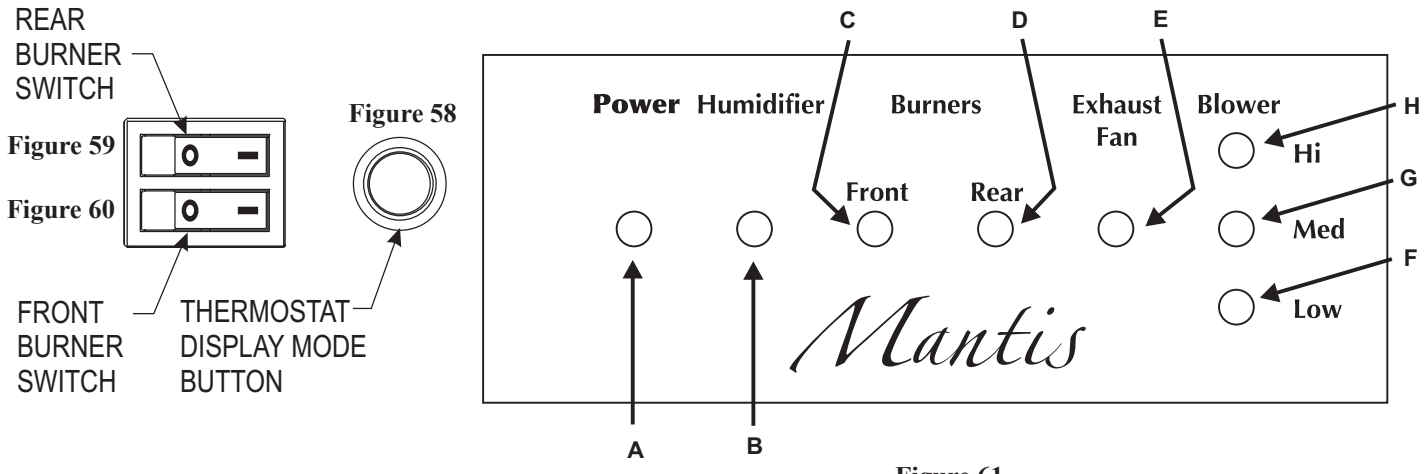


Figure 61

Caution: When switching from the front burner to the rear burner, be sure to activate the rear burner first, then turn off the front burner. When switching from rear burner to the front burner, be sure to activate the front burner first. Simple rule - always activate the desired burner first, then switch the other burner off. If it is switched the wrong way, the burner(s) will go out and the heater may need to be reset. Refer to page 45 - Resetting the Heater.

LIGHTING INSTRUCTIONS

FOR YOUR SAFETY READ BEFORE LIGHTING

WARNING: IF YOU DO NOT FOLLOW THESE INSTRUCTIONS EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR LOSS OF LIFE.

A. BEFORE LIGHTING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS

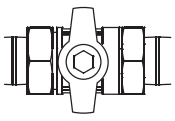
- Do not try to light any appliance.
- Do not touch any electrical switch.
- Do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you can not reach your gas supplier, call the fire department.

B. Use on the wall switch or remote control switch to turn the gas control on/off. Any attempted repairs or adjustments should be performed by a qualified service technician. Applying force or attempted repair may result in a fire or explosion.

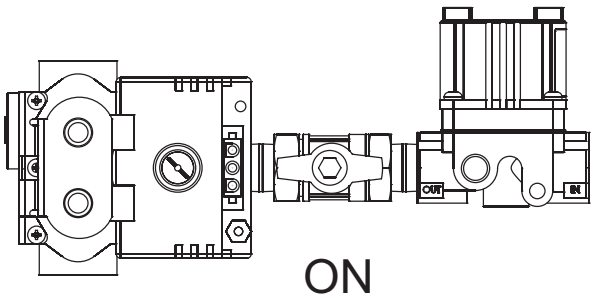
C. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

LIGHTING INSTRUCTIONS

1. STOP! Read the safety information above.
2. Set the thermostat, if used, to the lowest setting.
3. Turn off all electric power to the appliance. Turn off electrical control switches to "O."
4. This appliance is equipped with an ignition device that automatically lights the burner. Do not try to light the burner by hand.
5. Remove the front access panel below the glass door by pulling both sides forward simultaneously.
6. Turn gas line valve to "ON."
7. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "A" in the safety information above. If you do not smell gas, go to the next step.
8. Replace the front access panel, press both sides of the panel until both lock into position.
9. Turn on electric power to the appliance. Turn on electric control switches to "I."
10. Set thermostat to desired setting (if available).
11. If the appliance will not operate, follow the instructions "TO TURN OFF GAS TO APPLIANCE," and call your service technician or gas supplier.



OFF



ON

TO TURN OFF GAS TO APPLIANCE

1. STOP! Read the safety information above.
2. Set the thermostat, if used, to the lowest setting.
3. Turn off electric power to the appliance.
4. Remove front access panel.
5. Turn gas line valve to "OFF."
6. Replace front access panel.

FAN OPERATION

The 3-speed main convection fan will automatically start approximately 3 to 5 minutes after the heater has warmed up.

Note: The 3-speed main convection fan is automatically controlled and will operate on three preset speeds. Depending on your burner setting and the surrounding ambient temperature, the L.E.D lights (Page 34, Figure 61) for the fan will light up. The bottom L.E.D light (Figure 64F) is low speed setting, and middle L.E.D lights (Figure 61G) is the medium speed setting, the bottom, middle and top L.E.D lights (Figure 61H) is the high-speed setting (both burners on).

Note: The fan will operate totally independent of burner setting - it is controlled by temperature only.

a. Front burner only - low fan speed
b. Rear burner only - medium fan speed
c. Both front and rear burners - high fan speed

} These are approximates only

On changing the burner setting from high to medium, or from high to low, there will be a delay on the operating speed of the fan until the firebox has cooled down sufficiently for the fan to change speed.

Note: It can take up to approximately 20-30 minutes before the fan speed will change and settle on the next setting. The firebox temperature and the outside ambient temperature will regulate how quickly the fan responds to speed changes.

HEATER SHUT DOWN INSTRUCTIONS

Turn rear burner switch (Figure 59) and front burner switch (Figure 60) to the "OFF" position.

Note: Do not cut main electrical supply to the heater after the heater has been switched off to stop main fan operating. Main fan will stop operating automatically after the heater has cooled down sufficiently.

AUTOMATIC HUMIDIFIER OPERATION

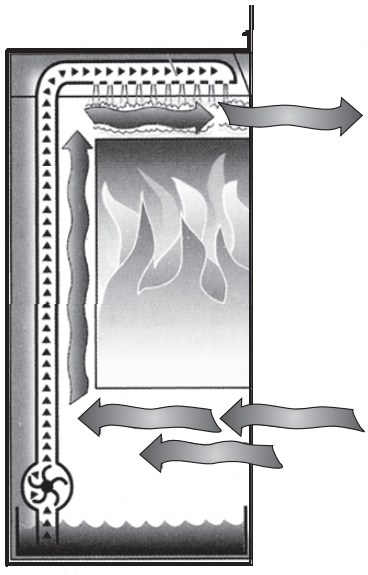


Figure 62

Most gas heaters dry out the air in the room. The Mantis has ingeniously solved this problem with an Automatic Humidifier. Gas contains moisture which is normally expelled out the flue or chimney after combustion. But the Mantis is so efficient by taking 92% of the heat out of the burnt gases that the moisture drops out and condenses in the back of the heater. This water is collected in a tank which is then pumped up to a stainless steel condensate tray, where it evaporates in the stream of hot air which is blowing into your home. Air humidity is automatically restored!

1. The amount of condensate build up in the water sump is dependent on outside temperature, length and height of the flue pipe. The automatic humidifier can operate from approximately 10 minute to 6 hour intervals, depending on ambient temperature, style and type of flue. Long single vertical flues can cause the humidifier to come on more often depending on heater settings.
2. When the automatic humidifier is engaged and is transferring the condensate into the holding tank, a hissing sound may be noticeable. This occurs when the condensate enters the holding tank and is quite normal. The duration of the sound may vary from 3 to 30 seconds until the holding tank has been filled with the condensate.
3. When the automatic humidifier pump comes on to pump condensate into the stainless steal tray (located on the top of the heater), the L.E.D. light (Page 34, Figure 61B) on the front panel will light up and flash while the condensate pump is operating, and then extinguish after the pump has stopped operating. This means water has been pumped into the tank, and the automatic humidifier operation will begin.

OPTIONAL CONTROLLERS

TEMPERATURE CONTROLLERS	
FRBTP	Battery Operated Remote with Programmable Thermostat
FRBTC	Battery Operated Remote with Thermostat
TRW	Battery Operated Wireless Remote Wall Thermostat
TMV2	Thermostat, 2 Stage
T24V	Thermostat, 24 Volt
TDV1	Wall Thermostat, 24 Volt

See your Mantis dealer for correct controller type.

INSTRUCTIONS MUST BE LEFT WITH THE OWNER FOR FUTURE REFERENCE AFTER INSTALLATION

Installation Instructions for FRBTP, FRBTC, and TRW

Remote Controls FRBTP, FRBTC and TRW are all battery operated devices. Begin installation by unplugging the unit and removing the front louver panel.

Remove wire nut from black and white wire from junction box.

Black or white wire can be inserted in either remote control receiver connection hole or connected to T24V thermostat screws. There is no polarity at this connection.

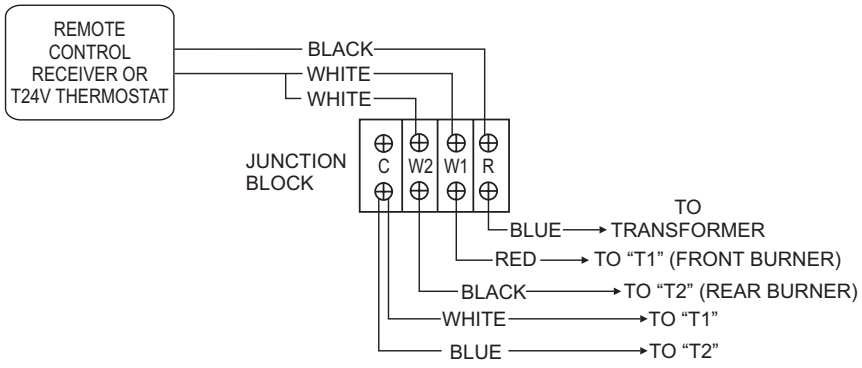


Figure 63

Replace front louver panel and plug unit into outlet. Turn both burner switches to the ON position. Burner switches must remain in the ON position for remote to function. Set remote from the instructions provided with the remote control. Set T24V thermostat to desired temperature.

Note: When the heater will not be used for long periods, the burner switches should be in the OFF position, and the heater should be turned off at the power point.

Installation Instruction for TMV2 - Two Stage Thermostat Model:

Begin installation by unplugging the unit and removing the front louver panel.

Determine mounting location of thermostat. Using standard 18 AWG wire, run four (4) strands of wire into rear of Mantis (See Figure 64) to junction block. Cut wire to correct length. Remove blue jumper wire from junction block and save for future use. Connect four (4) new thermostat wires to Mantis using schematic. See Figure 65.

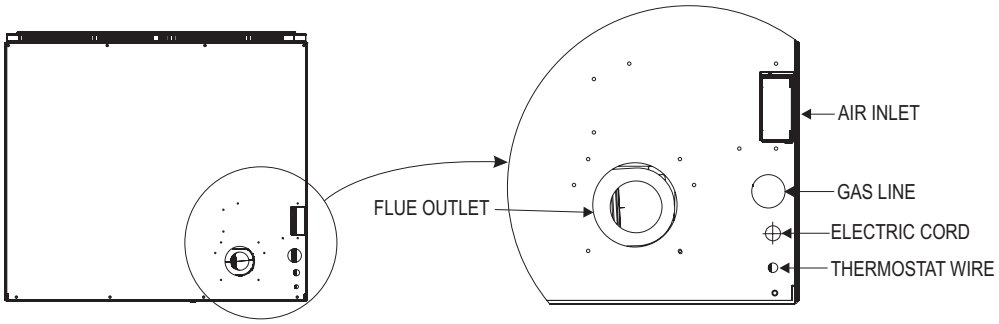


Figure 64

R: 24 Volt Hot

W1: Heat Relay Stage 1 (Front burner)

W2: Heat Relay Stage 2 (Rear burner)

C: 24 Volt Common

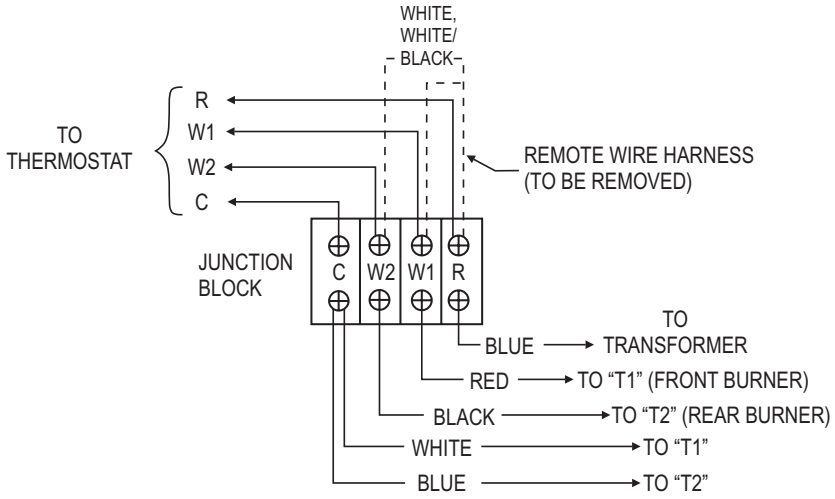


Figure 65

Replace front louver panel and plug unit into outlet. Turn both burner switches to ON position. Burner switches must remain in the ON position for thermostat to function. Set thermostat using the instructions provided with the thermostat.
Note: When the heater or the Remote Control will not be used for long periods the burner switches should be in the OFF position, also in summer the heater should be turned off at the power point.

Economy Display Mode
Economy Display Mode (Red Button Operation): The red button aside the two burner switches (Figure 66) is called the economy display mode and will only function when a Controller has been installed in the heater. The most common way to use this button is to set the controller to Thermo mode with a desired temperature set for the heater to turn on and off, which is dependant on the ambient temperature, location and the area the appliance is positioned. When using a controller both burner switches need to be in the ON position. When the red button is pressed with both burner switches on, the front burner only will ignite or if already alight, it will now remain on regardless of what function or temperature is set on the Remote Control. The red button acts as an override switch for the front burner only.

In this situation only the back burner will turn on and off according to the setting on the Remote Control. By running the heater this way you will use less gas and still have the aesthetic effect of the front burner. However, if the appliance is in a small area, this setting may get too warm for you. To change the setting, press the red button so that it is not illuminated and the heater will revert back to its normal operation.

Note: When the heater or the Remote Control will not be used for long periods the burner switches should be in the OFF position, also in summer the heater should be turned off at the power point.

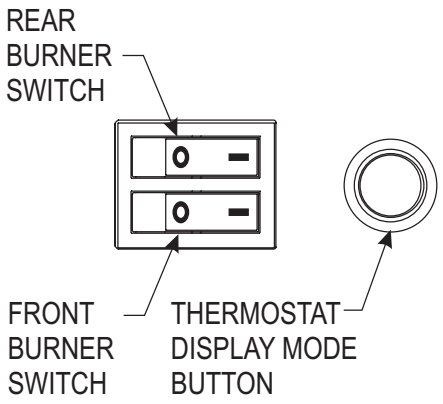


Figure 66

WIRING

The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70 or Canadian Electrical Code, CSA C22.1, if an external electrical source is utilized. **This appliance is equipped with a three-prong [grounding] plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.** For an ungrounded receptacle, an adapter, which has two prongs and a wire for grounding, can be purchased, plugged into the ungrounded receptacle and its wire connected to the receptacle mounting screw. With this wire completing the ground, the appliance cord plug can be plugged into the adapter and be electrically grounded.

CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

WARNING: Potential risk of fire, electric shock, and personal injury. Take precautions to reduce such risks.

Note: For testing flame sensor circuit use a micro-amp meter in series with sensor. Minimum current should be 1 micro-amp during operation. Be careful as flame sensor is in the 115VAC circuit. If current is below 1 micro-amp, remove sensor, clean with light sandpaper and retest.

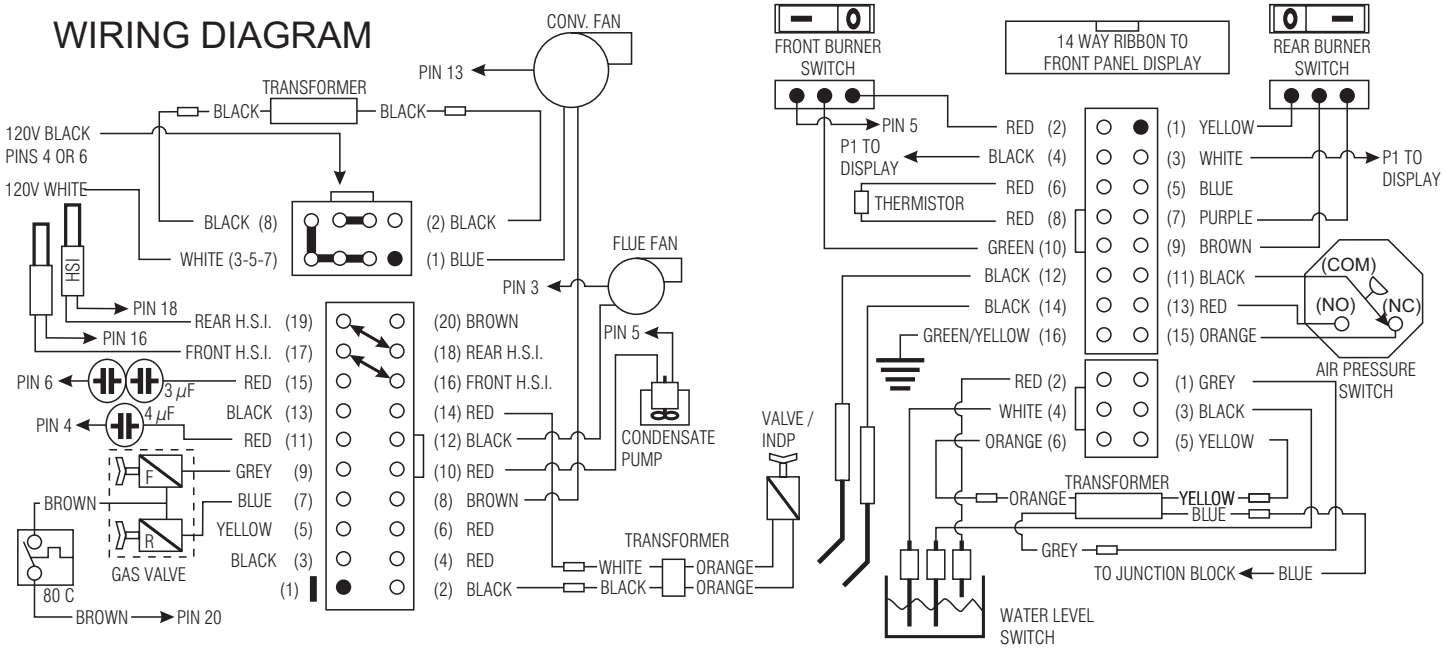


Figure 67

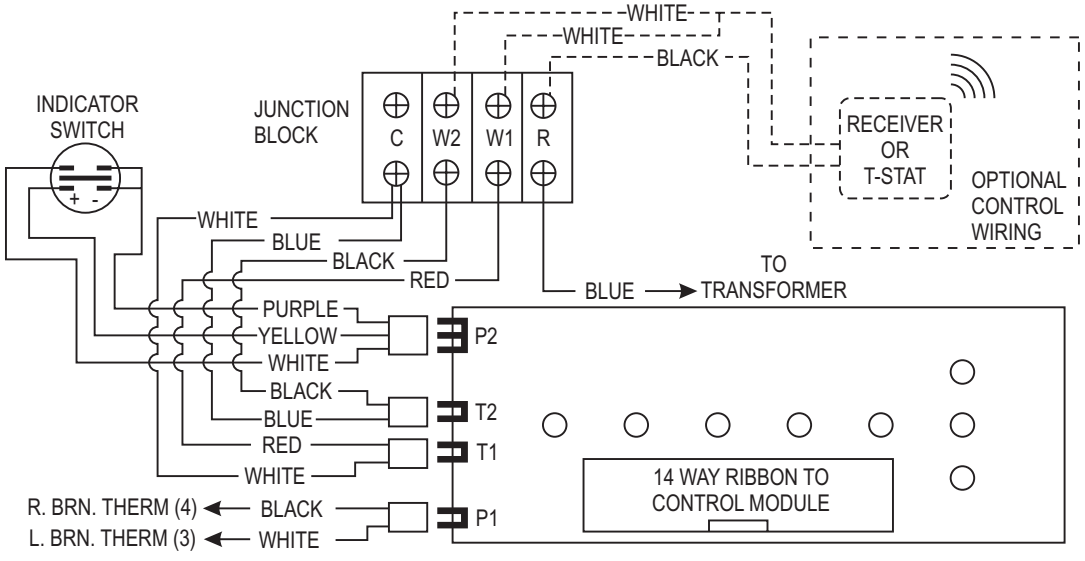


Figure 68

GENERAL INFORMATION

Over Temperature Cut Out

The Mantis Power-Vent High-Efficiency Fireplace is protected against overheating with a high temperature 80°C (176°F) cut off switch to protect the heat exchanger, plastic sump and flue fan.

The high temperature cut off switch will automatically switch off the gas supply to the heater, if the temperature in the room where the heater is located reaches approximately 28°C (82.4°F). The heater will go into lock out mode. An allowance of 15 minutes minimum must be made to allow for the main fan to cool down the heater prior to restarting the appliance.

Note: In most instances, overheating of the heater is a direct result of too much lint and dust having accumulated in the main convection fan. This makes the fan unable to supply sufficient air to cool down the heat exchanger. It is recommended that you inspect your main convection fan prior to the start of the heating season and if necessary have it serviced by a qualified service technician (refer to Pages 41 to 43 - Maintenance).

Paint Curing - First Firing

The first fire in your heater is part of the paint curing process. Your Mantis Power-Vent High-Efficiency Fireplace has been painted with the highest quality heat resistant silicon paint available in the world.

To ensure that the paint is properly cured, light the unit and leave it burning on high burn for approximately 1 hour.

1. During initial firing of this unit, its paint will bake out, and smoke will occur. To prevent triggering of smoke alarms, ventilate the room in which the unit is installed. During initial firing of logs, you will detect an odor as the logs are cured. Also, during the curing process the logs will burn with a yellow flame.
2. Don’t touch the surface of the heater. It will be soft during this paint-curing phase. Once cured it will not be soft again.
3. The paint finish of the heater should not be cleaned with any caustic or abrasive cleaning solutions.
4. Any damage to painted surface should be repaired with special touch up paint available from your Mantis Dealer.

MAINTENANCE

Note: Your appliance should be inspected, serviced and checked annually by a qualified service person to ensure that your appliance is operating safe and efficiently. Should you detect any abnormality in the operation of your appliance call a qualified service person who has been trained and approved to inspect and service the appliance. This may be your installer or dealer (routine service is not covered under warranty).

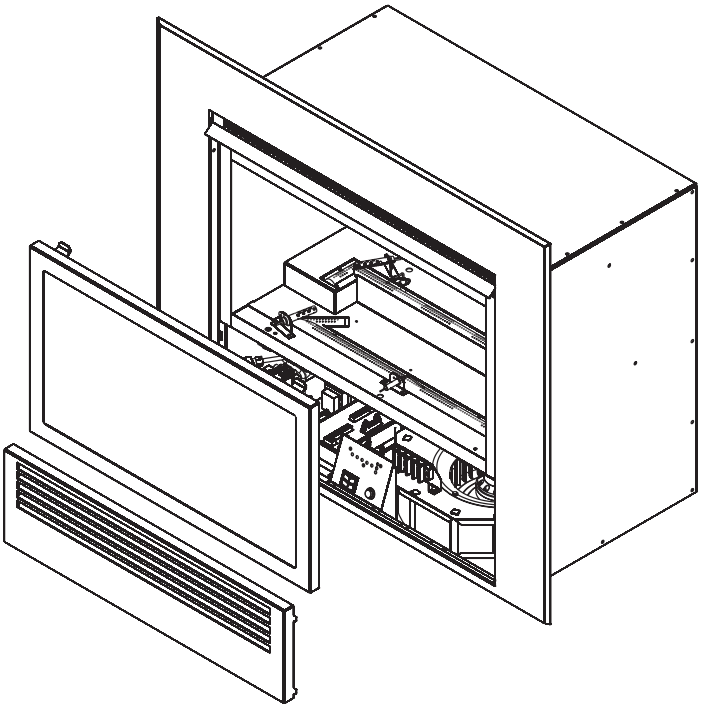


Figure 69
Front door removal drawing

Glass Cleaning

It will be necessary to clean the glass periodically. During start-up, condensation, which is normal, forms on the inside of the glass and causes lint, dust and other airborne particles to cling to the glass surface. Also, initial paint curing may deposit a slight film on the glass. It is therefore recommended that the glass be cleaned two or three times with a non-abrasive household cleaner and warm water (we recommend gas fireplace glass cleaner) after the initial burn. We do not recommend using packaged spray type household glass cleaner. After that, the glass should be cleaned two or three times during each heating season depending on the circumstances present.

General Glass Information

Only glass approved for use in Empire Comfort Systems, Inc. fireplace may be used for replacement. The glass replacement must be done by a licensed or qualified service person.

WARNING:

1. The use of substitute glass will void all product warranties.
2. Care must be taken to avoid breakage of the glass.
3. Under no circumstances should this appliance be operated without the glass front or with a broken glass front. Replacement of the glass (with gasket) as supplied by the manufacturer must be done by a qualified service person.
4. Do not abuse the glass by striking or hitting the glass.

WARNING: Do not use abrasive cleaners on glass. Do not attempt to clean glass when glass is hot.

Glass Assembly Replacement

Removal

1. Remove lower louver panel by lifting up and pulling out.
2. Release two (2) hinge clips on underside of firebox.
3. Angle bottom of glass assembly approximately 60 degrees out from firebox. Gently pull glass assembly away from firebox.

Replacement

4. Insert the tabs on top of new glass assembly into the slots on top of the firebox and gently lower the glass assembly down.
5. Attach and tighten the two (2) hinge clips on underside of firebox.
6. Replace lower louver panel.

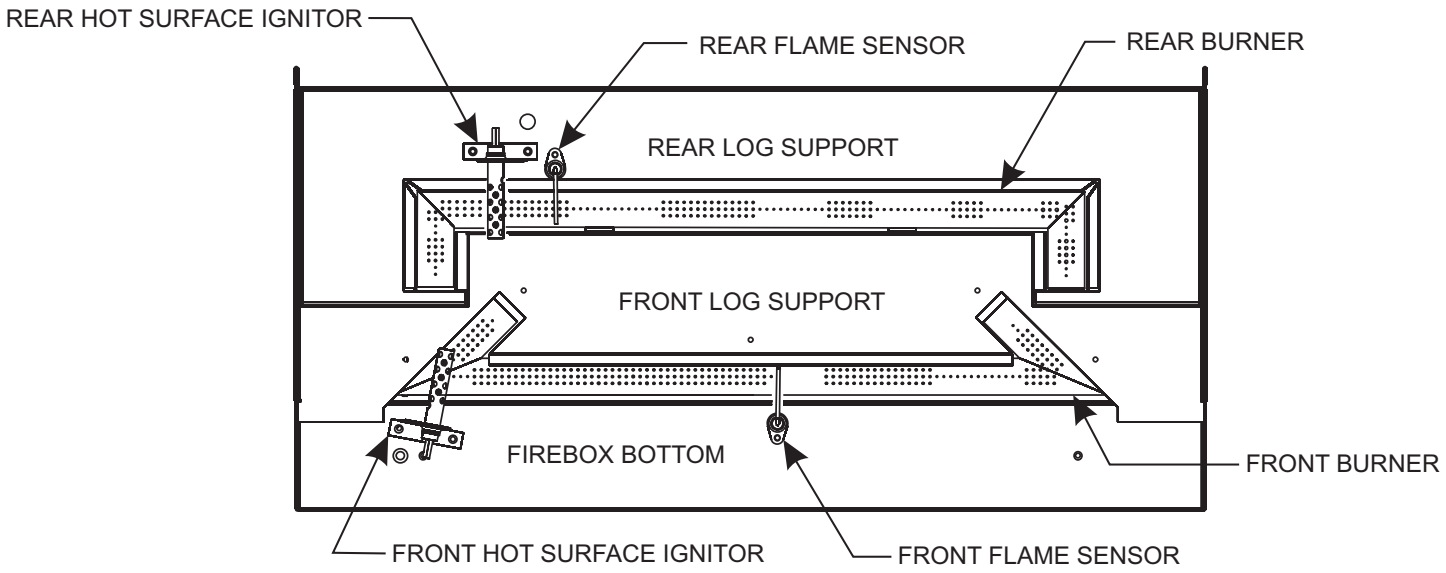


Figure 70

Removal and replacement of Front Hot Surface Ignitor (HSI)

1. Unplug power cord from electricity.
2. Remove lower louver door.
3. Remove glass assembly. See page 41.
4. Carefully remove logs from unit.
5. Remove one (1) screw with 5/16 socket from bracket securing HSI to firebox bottom and set aside.
6. Disconnect two (2) white caps connecting HSI to wire harness.
7. Cut wires at HSI and pull through the firebox bottom and discard.
8. Remove (1) screw securing bracket to HSI with a 1/4" socket. Set aside screw and bracket. Discard old HSI.
9. Place bracket removed in Step 8 around new HSI and secure with screw removed in Step 8.
10. Secure bracket to firebox bottom with screw removed in Step 3.
11. Carefully feed HSI wires through hole in bottom of firebox from the topside to underneath.
12. Place caps included with kit on each HSI wire.
13. Connect caps to plugs disconnected in Step 6.
14. Use clear high temp silicone (not supplied) to fully plug wire hole in firebox bottom. Allow appropriate time to dry.
15. Replace logs into unit. See pages 15 to 16.
16. Replace glass assembly. See page 41.
17. Replace lower louver door.
18. Reconnect power cord to electricity.

Removal and replacement of Rear Hot Surface Ignitor (HSI)

1. Unplug power cord from electricity.
2. Remove lower louver door.
3. Remove glass assembly. See page 41.
4. Carefully remove logs from unit.
5. Carefully remove front log support by lifting out. Use caution to not damage front HSI or to bend or break support.
6. Remove one (1) screw with 5/16 socket from bracket securing HSI to rear log support and set aside.
7. Disconnect two (2) white caps connecting HSI to wire harness.
8. Cut wires at HSI and pull through the rear log support and discard.
9. Remove (1) screw securing bracket to HSI with a 1/4" socket. Set aside screw and bracket. Discard old HSI.
10. Place bracket removed in Step 9 around new HSI and secure with screw removed in Step 9.
11. Secure bracket to firebox bottom with screw removed in Step 6.
12. Thread HSI wires through hole in rear log support down and then through the hole in firebox bottom and behind rear burner tube.
13. Place caps included with kit on each HSI wire.
14. Connect caps to plugs disconnect in Step 7.
15. Use clear high temperature silicone (not supplied) to fully plug wire hole in rear log support. Allow appropriate time to dry.
16. Replace front log support.
17. Replace logs. See pages 15 to 16.
18. Replace glass assembly. See page 41.
19. Replace lower louver door.
20. Reconnect power cord to electricity.

MAINTENANCE

Removal and Replacement of Front or Rear Flame Sensors

1. Unplug power cord from electricity.
2. Remove lower louver door.
3. Remove glass assembly. See page 41.
4. Carefully remove logs from unit.
5. Unplug flame sensor from wire harness.
6. Remove screw with 1/4" socket securing flame sensor to firebox bottom (front flame sensor or rear log support (rear flame sensor).
7. Gently pull flame sensor and wires out of unit and discard.
8. Carefully thread flame sensor wires through firebox bottom (front flame sensor) or rear log support (rear flame sensor).
9. Reconnect flame sensor wire to wire harness.
10. Use clear high temperature silicone (not supplied) to fully plug wire hole in firebox bottom. Allow appropriate time to dry.
11. Replace logs. See pages 15 to 16.
12. Replace glass assembly. See page 41.
13. Replace lower louver door.
12. Reconnect power cord to unit.

Remove and Replace or Clean the Circulating Air Blower

1. Unplug power cord from unit.
2. Remove lower louver door.
3. Remove two (2) 5/16" screws securing control assembly to Mantis bottom and set control assembly and screws aside. Caution: Do not disconnect wires from unit.
4. Remove one (1) 5/16" screw securing junction block to blower. Set screw and junction block aside. Caution: Do not disconnect wires from unit.
5. Remove one (1) 5/16" screw securing pressure switch to blower housing and set pressure switch and screw aside. Caution: Do not disconnect wires or hoses from unit.
6. Remove two (2) 5/16" screws securing blower housing to Mantis bottom. Set screws and ground wire aside.
7. Disconnect 3-prong cap and plug from wire harness to remove blower from fireplace. Blower can be cleaned with compressed air or replaced at this point.
8. Secure blower housing and ground wire to Mantis bottom with two (2) 5/16" screws removed in Step 5.
9. Secure pressure switch to blower housing with one (1) 5/16" screw removed in Step 4.
10. Secure junction block to blower with one (1) 5/16" screw removed in Step 3.
11. Secure control assembly to Mantis bottom with two (2) 5/16" screws removed in Step 2.
12. Close lower louver door.
13. Replace lower louver door.
14. Reconnect power cord to electricity.

Cleaning Burners

Remove main burner and apply air pressure inside the throat and ports of the main burner.

Removing and Replacing Front Burner

1. Unplug power cord from electricity.
2. Remove lower louver door.
3. Remove glass assembly. See page 41.
4. Carefully remove logs from unit.
5. Carefully remove front log support by lifting out. Use caution to not damage front HSI or to bend or break support.
6. Remove two (2) screws securing front burner to firebox bottom with Phillips screwdriver and set aside.
7. Slide burner to the right and lift out.
8. Burner can be cleaned at this point
9. Place burner onto right side of firebox bottom. Slide left and secure in place with two (2) screws removed in step 6.
10. Replace front log support.
11. Replace logs. See pages 15 to 16.
12. Replace glass assembly. See page 41.
13. Replace lower louver door.
14. Reconnect power cord to electricity.

Removing and Replacing Rear Burner

1. Unplug power cord from electricity.
2. Remove lower louver door.
3. Remove glass assembly. See page 41.
4. Carefully remove logs from unit.
5. Carefully remove front log support by lifting out. Use caution to not damage front HSI or to bend or break support.
6. Remove two (2) 5/16" screws securing rear log support to firebox side (one each side). Lift up rear log support, but do not remove from firebox.
7. Remove two (2) screws securing burner to firebox bottom with Phillips screwdriver.
8. Slide burner to right and lift out.
9. Burner can be cleaned at this point.
10. Place burner on right side and slide left into firebox and secure with screws removed in step 7.
11. Lower rear log support and secure to firebox sides with screws removed in Step 6.
12. Replace front log support.
13. Replace logs. See pages 15 to 16.
14. Replace glass assembly. See page 41.
15. Replace lower louver door.
16. Reconnect power cord to electricity.

MAIN CONVECTION FAN

The main convection fan in the heater should be checked, serviced and cleaned annually by a qualified service person to ensure that your appliance is operating efficiently.

Note: If the main convection fan becomes clogged with lint and dust an over-temperature situation will occur through the heater exchange system and the over-temperature safety switch will stop the heater from operating.

HEAT EXCHANGER

The heat exchanger of the unit is located at the rear of the heater. The heat exchanger should be inspected annually by a qualified service person for lint and dust build up. Excessive dust and lint build-up in the heat exchanger can alter the unit's performance and operation.

Note: This appliance (Insert and Wall Models) needs to be installed in such a way that the heater (especially with models built into a fireplace) can be removed at all times to service the heat exchanger and flue fan, which are located at the rear section of the heater.

Under no circumstances should the appliance be installed under conditions that would not allow for easy removal of the appliance to carry out routine inspection and service work on the appliance.

DISCONNECT MAIN POWER PRIOR TO STARTING ANY WORK ON THE APPLIANCE.

UNIT OPERATING FAULTS

SERVICE AND INSTALLATION OF THE APPLIANCE SHOULD BE CARRIED OUT BY AUTHORIZED PERSONNEL ONLY.

THE MAJOR CAUSE OF OPERATING PROBLEMS WITH GAS FIREPLACE HEATERS IS IMPROPER GAS PRESSURE, INCORRECT LOG PLACEMENT, IMPROPER INSTALLATION, INCORRECT FLUE INSTALLATION, INCORRECT SWITCHING OF BURNERS, DIPS/SPIKES IN THE INCOMING POWER OR REVERSE POLARITIES.

The above situations can cause such problems as changes in flame color or configuration, intermittent operations, changes in heat output, carbon build up or sooting, bad odors, rattles or other sounds, start up failures and burner(s) switching themselves off. These are nearly always the result of improper installation or incorrect operation and it may take sometime for these problems to show themselves. Before calling out a technician you must be able to repeat the fault, try resetting the heater. Read below.

Note: Incorrect installation of the unit, logs, flue pipe, gas pressure or operation, which cause the above mentioned faults, are not covered under warranty and a service call fee will be charged to correct such problems.

RESETTING THE HEATER

There are a number of reasons why sometimes the heater will switch itself off and is the correct thing for the heater to do in certain situations (i.e. overheating, power failure or dips, windy conditions, pump failure, partial or full blockage of flue pipe or no gas. All of these operations are monitored by the electronic control box inside the heater, which is heat sensitive, pressure switch sensitive, flame sensitive and water sensitive. If one of these items is not correct, the heater will shut itself down.

To reset, turn both burner switches to the OFF position, ensure the red button above the two burner switches is not illuminated (if a Remote Control is fitted, have it in the off mode). Then turn the power off at the power point for approximately 10 seconds. Then turn the power point back on and the power L.E.D. should be illuminated. If you have a Remote burner switch and the rear burner L.E.D. should start flashing, with the flue fan L.E.D. remaining steady. Wait approximately 60 seconds for the rear burner to ignite. You can tell when it has lit, even if you can't see any flames, by looking at the rear burner L.E.D. which should remain steady. Repeat the same process with the front burner. Turn on the front burner switch and wait approximately 60 seconds and the front burner L.E.D. will remain steady.

In approximately 5 minutes the convection fan should start and the heater has been successfully reset.

Note: if the heater is still warm when reset the convection fan may already be running when the unit is powered up.

LOG REPLACEMENT

If for any reason a log should need replacement, you must use the proper replacement log. Consult your Mantis dealer for correct replacement logs.

Replacement logs must be installed and positioned as outlined on pages 15 to 16 under Log Installation.

Note: Improper positioning of logs can create carbon build up and will alter the unit's performance and operation.

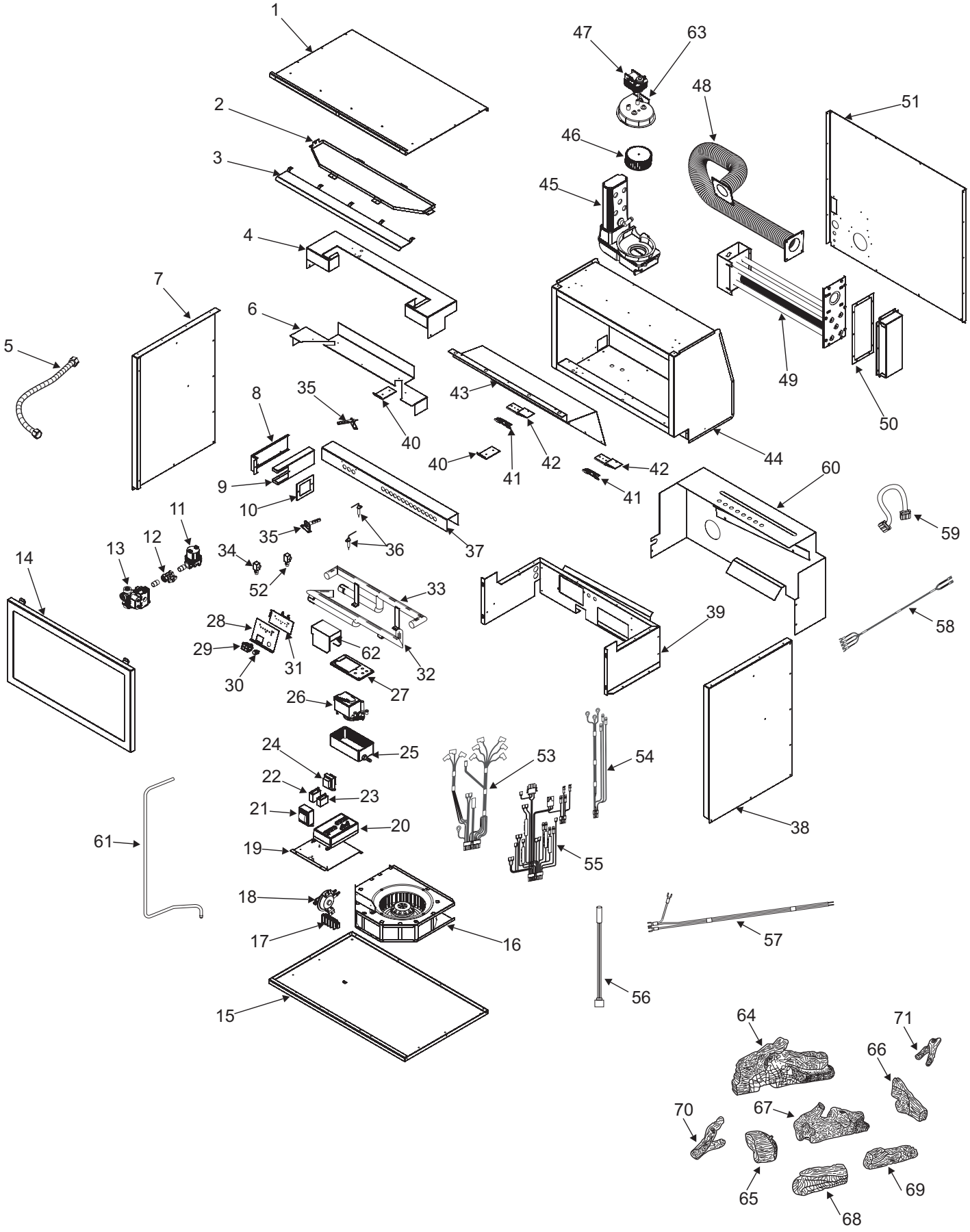
PARTS LIST

PLEASE NOTE: When ordering parts, it is very important that part number and description of part coincide.

INDEX NO.	PART NO.	DESCRIPTION
1	25207	PANEL - TOP
2	21595	CONDENSATE TRAY
3	25223	LOUVER - TOP
4	25212	REAR BURNER TRAY
5	R9987	FLEX LINE
6	26081	FRONT BURNER TRAY ASSEMBLY
7	25205	PANEL - LEFT SIDE
8	21605	INLET AIR DUCT COVER
9	21604	INLET AIR DUCT
10	R8810	INLET AIR DUCT GASKET
11	R8825	SOLENOID
12	R10072	GAS SHUT OFF VALVE
13	R8812	VALVE - NAT
14	26071	GLASS ASSEMBLY
15	25208	BOTTOM PAN
16	22778	AIR CIRCULATOR ASSEMBLY
17	R8817	TERMINAL STRIP
18	R10338	PRESSURE SWITCH
19	25227	ELECTRICAL PARTS PLATE
20	R10074	CONTROL BOX
21	R8889	TRANSFORMER 12-24V
22	R8881	CAPACITOR 3uF
23	R8880	CAPACITOR 4uF
24	R8804	TRANSFORMER - 24V
25	R10079	CONDENSATE PUMP BOX
26	R8832	CONDENSATE PUMP
27	R10080	CONDENSATE PUMP LID
28	25226	CIRCUIT BOARD PLATE
29	R8809	DOUBLE ROCKER SWITCH
30	R8876	LOCK OUT SWITCH
31	R8904	CIRCUIT BOARD
32	26083	FRONT BURNER ASSEMBLY
33	26082	BACK BURNER ASSEMBLY
34	R10082	ORIFICE HOLDER
35	22865	HOT SURFACE IGNITOR (2 REQUIRED)
36	R8807	FLAME SENSOR (2 REQUIRED)
37	25210	AIR DUCT CHANNEL
38	25214	PANEL - RIGHT SIDE
39	25221	FIREBOX BASE
40	25222	DOOR BRACKET (2 REQUIRED)
41	R4053	DOOR CLAMP (2 REQUIRED)
42	25225	LATCH BRACKET (2 REQUIRED)
43	25215	BAFFLE
44	26080	FIREBOX ASSEMBLY
45	26087	SUMP ASSEMBLY
46	R8799	INDUCER WHEEL
47	R8798	INDUCER MOTOR
48	26089	FLEX PIPE ASSEMBLY
49	26090	FIN TUBE ASSEMBLY
50	R8811	INLET HEADER GASKET
51	25204	PANEL - BACK
52	R8793	ORIFICE HOLDER
53	R10182	WIRE HARNESS - 120V
54	R10190	WIRE HARNESS - 12V SMALL
55	R10183	WIRE HARNESS - 12V LARGE
56	R8814	THERMISTER
57	R9487	REMOTE WIRE ASSEMBLY
58	R8872	WIRE HARNESS
59	R8905	RIBBON CABLE
60	24831	REAR HEAT SHIELD ASSEMBLY
61	22642	CONDENSATE PUMP TUBE
62	25325	CONDENSATE PUMP COVER
63	R8874	INDUCER, TOP SCROLL
64	R10077	LOG SET
64	R10376	REAR LOG
65	R10381	LEFT LOG
66	R10380	RIGHT LOG
67	R10379	MIDDLE LOG
68	R10378	FRONT LEFT LOG
69	R10377	FRONT RIGHT LOG
70	R10383	LEFT TOP LONG LOG
71	R10382	RIGHT TOP SHORT LOG
NOT SHOWN	R10093	ORIFICE #47 - NAT
NOT SHOWN	R10094	ORIFICE #49 - NAT
NOT SHOWN	R10095	ORIFICE #1.2MM - LP
NOT SHOWN	R10096	ORIFICE #55 - LP
NOT SHOWN	26117	AIR DUCT CHANNEL COVER PLATE - NAT ONLY
NOT SHOWN	R10299	SWITCH, BIMETALIC

USE ONLY MANUFACTURER'S REPLACEMENT PARTS. USE OF ANY OTHER PARTS COULD CAUSE INJURY OR DEATH.

PARTS VIEW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WARRANTY TERMS

Empire Comfort Systems

Purchase Date: _____

Dealer Name/Phone: _____

Installer - Place Serial Number Sticker Here and Leave this Manual with the Consumer.

Limited Ten-Year Heat Exchanger Warranty
Empire promises to the owner that if the heat exchanger (see parts list) fails because of defective workmanship or material within ten years from the date of purchase, Empire will repair, or at Empire's option, replace the defective heat exchanger.

Limited Five-Year Parts Warranty
Travel, diagnostic cost, service labor, labor to repair the defective appliance, and freight charges on warranty parts to and from the factory will be the responsibility of the owner.
Should any part fail because of defective workmanship or material within five years from the date of purchase, Empire will repair or replace it, at Empire's option.

Limited Two-Year Labor Warranty
Should any part fail because of defective workmanship or material within two years from the date of purchase, Empire will repair or replace it, at Empire's option. All labor must be performed by a qualified gas appliance technician.

Duties Of The Owner
The heating appliance must be installed by a qualified installer and operated in accordance with the written instructions furnished with the appliance.
Ready access to the appliance for service is the responsibility of the owner.
A bill of sale, cancelled check, or payment record should be kept to verify purchase date and establish warranty period.

What is Not Covered
This warranty does not imply or assume any responsibility for damages resulting from the use, misuse, or improper installation of this heating appliance.
This warranty covers only claims involving defective workmanship or materials.

How To Get Service
Service under this warranty must be obtained by contacting your Empire dealer. Provide your dealer with the model number, serial number, type of gas and purchase verification information.
If contacting your Empire dealer does not provide satisfactory service, contact: Consumer Relations Department, Empire Comfort Systems Inc., P.O. Box 529, Belleville, Illinois 62222, or call 618-233-7420.

Your Rights Under State Law
This warranty gives you specific legal rights. You may have other rights, which vary from state to state.

MASTER PARTS DISTRIBUTOR LIST

To Order Parts Under Warranty, please contact your local Empire dealer. See the dealer locator at www.empirecomfort.com. To provide warranty service, your dealer will need your name and address, purchase date and serial number, and the nature of the problem with the unit.

To Order Parts After the Warranty Period, please contact your dealer or one of the Master Parts Distributors listed below. This list grows from time to time. For the current list, please click on the Master Parts button at www.empirecomfort.com.

Please note: Master Parts Distributors are independent businesses that stock the most commonly ordered Original Equipment repair parts for Heaters, Grills, and Fireplaces manufactured by Empire Comfort Systems Inc.

Star-Fire Distributors
1355 Evans Avenue
Akron, OH 44305

Phone: 330-630-2794
Toll Free: 800-875-6220
Fax: 330-633-8701
Parts: Heater & Hearth and Grills

Dey Distributing
1401 Willow Lake Boulevard
Vadnais Heights, MN 55101

Phone: 651-490-9191
Toll Free: 800-397-1339
Website: www.deydistributing.com
Parts: Heater & Hearth

East Coast Energy Products
10 East Route 36
West Long Branch, NJ 07764

Phone: 732-870-8809
Toll Free: 800-755-8809
Fax: 732-870-8811
Website: www.eastcoastenergy.com
Parts: Heater & Hearth and Grills

Victor Division of F. W. Webb Company
200 Locust Street
Hartford, CT 06114

Phone: 860-722-2433
Toll Free: 800-243-9360
Fax: 860-293-0479
Toll Free Fax: 800-274-2004
Websites: www.fwwebb.com & www.victormfg.com
Parts: Heater & Hearth and Grills

HOW TO ORDER REPAIR PARTS

Parts Not Under Warranty

Parts can be ordered through your Service Person, Dealer, or a Master Parts Distributor. See this page for the Master Parts Distributors list. For best results, the **service person or dealer** should order parts through the distributor. Parts can be shipped directly to the **service person/dealer**.

Warranty Parts

Warranty parts will need a proof of purchase and can be ordered by your Service Person or Dealer. Proof of purchase is **required** for warranty parts.

All parts listed in the Parts List have a Part Number. When ordering parts, first obtain the Model Number from the name plate on your equipment. Then determine the Part Number (**not** the Index Number) and the Description of each part from the following appropriate illustration and list. Be sure to give all this information . . .

Appliance Number _____ Part Description _____

Appliance Serial Number _____ Part Number _____

Type of Gas (Propane or Natural) _____

Do not order bolts, screws, washers or nuts. They are standard hardware items and can be purchased at any local hardware store.

Shipments contingent upon strikes, fires and all causes beyond our control.

SERVICE NOTES

SERVICE NOTES

Empire Comfort Systems Inc.
918 Freeburg Ave. Belleville, IL 62220

If you have a general question about our products, please e-mail us at info@empirecomfort.com.
If you have a service or repair question, please contact your dealer.

www.empirecomfort.com